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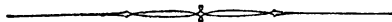
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GAME BIRDS
AND
WILD FOWL OF INDIA;

BEING
DESCRIPTIONS OF ALL THE SPECIES OF GAME BIRDS,
SNIFE, AND DUCK FOUND IN INDIA,

WITH
AN ACCOUNT OF THEIR HABITS AND GEOGRAPHICAL
DISTRIBUTION.

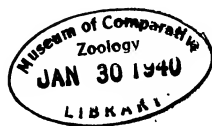
BY T. C. JERDON,
SURGEON MAJOR, MADRAS ARMY.
AUTHOR OF "ILLUSTRATIONS OF INDIAN ORNITHOLOGY," "THE BIRDS OF INDIA," &c.



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PREFACE.

The following pages are a verbatim transcript from the Author's 'Birds of India,' relating to the Game birds and Wild-fowl of India, and are put in a separate form to meet the views of such sportsmen as do not care to possess a general work on the Ornithology of India. The only birds omitted, which might perhaps have been introduced, are the European Crane, *Grus cinerea*, and the Demoiselle Crane, *Anthropoides virgo*, both occasionally called *Koolung* by sportsmen, though the name is properly restricted to the former bird; and these will be found described in the Birds of India, Vol. II, p. 664 *et seq.*

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GAME BIRDS OF INDIA.

ORD. RASORES.

Syn. *Gallinæ*, Linn.—*Gallinacei*, Vieillot—*Pulveratrices* of some—Gallinaceous birds—Game birds.

Bill short, vaulted, more or less bent down at the tip ; nostrils pierced in a membrane covering the base of the bill, and protected by a cartilaginous scale ; wings usually short and rounded, but ample ; tail very variable, both in length and form, of from twelve to eighteen feathers ; legs and feet strong, feathered to the tarsus, which is frequently spurred in the male ; three toes before and one behind, the posterior one typically short, and articulated above the plane of the anterior toes, wanting in a few ; nails strong, blunt, and but slightly curved.

The Gallinaceous birds, of which the domestic fowl may be taken as the type, comprise the most important and useful members of the whole class. The name of the order which I have adopted, as being in conformity with those of the other orders, and, moreover, in general use by English Ornithologists, is taken from their habit of scraping in the ground to procure their food. Unlike the order *Gemitores*, it contains a considerable variety of distinct types.

Taking them generally, they may be said to be birds of moderate or rather large size, heavy form, with a strong, short, and arched bill ; very stout legs and feet, with the hind toe usually small and raised, and the shank furnished, in many, with a spur. In two of the families, however, the hind toe is on the same plane as the anterior ones, and in one family often absent entirely. The front toes are usually joined at their base by a short connecting web. In all cases, they seek their food on the ground ; and this consists of grain, seeds, roots, buds, and insects. Many are polygamous, and in these, the male bird is larger, and adorned with much richer plumage than the female ; and many are furnished with crests of various forms. The hen is usually more

“

prolific than in any previous tribe. They are often social, in some groups even gregarious; they do not wash, but roll themselves in the dust, and almost all nestle on the ground. The young of all are born covered with down, and run as soon as hatched. They are more or less capable of domestication, and all afford an excellent and wholesome food for man.

The head is smaller than in the birds of the preceding orders, and the neck longer; the wings are generally rounded and feeble, the sternum from its large notches affording but little space for the attachment of the pectoral muscles which, however, are well developed, giving the bird a plump appearance; and the flight, though not capable of being continued, is yet tolerably rapid and powerful, though labored, for a short distance. The bill in most is thick, short, and convex, slender in two of the families. The tail is short and even in some, rounded in others, forked in several, and lengthened and graduated in a few.

The skull of most *Rasores* is narrow, but slightly raised, and without ridges, and the bony orbit is incomplete. The cervical vertebræ are of greater number than in any of the preceding orders, varying from 13 to 15. The sternum has a double bifurcation on each side, and the fissures are so wide and deep as to give to the lateral parts of the bone the appearance of a bifurcated process. The median fissure is the deepest; the keel is short, shallow, and nearly straight; the furcula is ankylosed, and, as in most of the previous groups, is joined to the sternum below by ligaments. The tarsal spur, present in many Gallinaceous birds, and represented by a knob in others, is considered to be the representative of the thumb, and is present in no other order but in this.

The dilatation of the œsophagus, called the crop, is large but single; the gastric glands are complex, and form a complete circle; the gizzard is extremely strong, the internal coat being thick and hard; and as the birds of this order swallow small stones, gravel, &c., to assist in the trituration of the food, two callous buttons are formed in the gizzard by the constant pressure and friction. The cœca are, in general, highly developed in Gallinaceous birds; small comparatively in the more aberrant families, enormous in some, especially in the Grouse tribe. The gall bladder is

believed to be always present. The trachea is of pretty uniform diameter in most, and the muscles are exceedingly simple, so that the *Rasores* cannot modulate their voice. In most of the groups, the accessory plume to the clothing feathers is present, and is large indeed in many.

This order is remarkable for comprising so many species capable of domestication, and the common fowl, which undoubtedly takes its origin from the Red Jungle-fowl, has been domesticated from the earliest period.

Gallinaceous birds evince many interesting analogies with Ruminating animals among Mammals. The crop may be said to represent the paunch, both being simply dilatations of the œsophagus to receive the food, and thoroughly moisten it; and the cœca of both are large. They have both a low degree of intelligence, are easily domesticated, and are more prone to variation than most other tribes. The head, too, is in many of both orders, adorned with appendages, horns, and crests; and they afford more wholesome food to man than any other orders.

The *Rasores* are found over the greater part of the world; but the finest and the most typical groups, containing, too, the greatest variety of form, are from Asia. Africa possesses one group peculiar to that region, and several others nearly related to Asiatic forms. In America there are but few of the more typical groups, but two of the most aberrant divisions occur there only. In Australia they are sparingly represented by one very aberrant group, and by a very few members of the typical division. Europe and the more Northern portions of both Continents contain one fine group.

The nearest approach among Insectorial birds to the *Rasores* occurs perhaps in some of the American Cuckoos; and that remarkable bird, the *Hoazin*, *Opisthocomus cristatus*, was placed by some naturalists among those birds, but is better associated with *Penelope*, a genus of the aberrant *Cracidae*. If that truly wonderful bird, the Lyre-bird of Australia, be really an Insectorial type, however, it must be considered to be a still closer link to the aberrant *Megapodidae*. See further on page 7. On the other side, the *Rasores* may be said to join

the *Grallatores* through the Bustards; and the *Megapodidæ* also appear to have some affinities for the Rails.*

I shall divide the *Rasores* into the following families:—

A. Hind toe on the same plane as the anterior ones.

1. *Cracidæ*, Curassows and Guans, peculiar to America.

2. *Megapodidæ*, Mound-birds, peculiar to Australia and Malayana.

B. Hind toe raised above the level of the others, or wanting.

3. *Pteroclidæ*, Sand-grouse, chiefly from Africa and Asia, not extending into Malayana.

4. *Phasianidæ*, chiefly from Central and Southern Asia.

5. *Tetraonidæ*, Grouse and Partridges, found over all the world, but rare in Australia and South America.

6. *Tinamidæ*, mostly American, but sparingly represented in the tropical regions of the Old World, and Australia.

Blyth does not admit the separation of the *Phasianidæ* and *Tetraonidæ*, and certainly these are more nearly related to each other than either of them are to any of the other families; but this appears to be always the case with the more typical groups of any order; and, moreover, the Geographical distribution of each family differs considerably; for, whilst the *Phasianidæ* are, with one limited exception in America, and that a doubtful member, confined to Asia, and more especially to India and Central Asia, the *Tetraonidæ* are found over all the world, rare, indeed, but not unrepresented in Australia and South America. The fact of certain species of the two families occasionally breeding together, as the Pheasant and Black-grouse (insisted on by some as a proof of the close alliance of these two genera), I consider to be not more anomalous in this order than it could be of two allied genera of another order interbreeding; and I would regard it simply as an occasional peculiarity in the birds

* The subject of the external relations and affinities of various groups of animals, though long insisted on by some naturalists, was, till recently, scouted by many; but the researches and views of Darwin as to the successive development of all created beings, has given a fresh impetus to this interesting subject of enquiry.

of this group; for those who rely on it as a proof of the close affinity between such birds, would surely not assert that the affinity between the Grouse and the Pheasant was greater than that between certain species of Partridges for example, which, though living in the same localities, have not been known to breed together.

The family CRACIDÆ, comprising the Curassows and Guans, are exclusively American. They are birds of large or moderate size, with the tarsus moderately long, stout, and destitute of spurs; the toes elongated and slender, and the hind toe long, and on a level with the others. The tail is moderately long, broad, of fourteen stiff feathers, rounded in some, graduated in others. The head of a few is adorned with a crest of recurved feathers; the membrane at the base of the bill is highly colored in some; there is a solid knob at the base of the bill in others; and, in one division, the skin of the throat is naked and dilatable. The sternum has the crest very deep, and the inner notch reduced to about one-third of the outer. Several have a remarkable conformation of the trachea, which descends along the skin behind the sternum, and then, making a curve, re-enters the thorax. The supplementary plume is reduced to a mere downy tuft.

These birds dwell in forests, and live on fruit, seeds, and insects, mostly feeding on the ground. Some live in pairs, others in societies. They chiefly nestle upon trees, laying few eggs, in some cases only two; and the young perch as soon as excluded from the egg. They are easily tamed and reared, but have not been domesticated. Their flesh is said to be white, tender, and excellent. By their habits and structure, the *Cracidæ* appear to be the link that joins the Pigeons to the *Rasores*, approximating the former in the structure of the feet and sternum, as well as in their habit of nestling on trees, and laying but few eggs.

Gray divides them into *Cracinae* and *Penelopinae*. The former, the Curassows and Pauxis, are chiefly black, or black and white; the Guans are of various shades of brown. Near these birds, according to some, should be placed the *Cariama*, *Microdactylus cristatus*, of Geoffroy (*Dicholophus* of Illiger), located by Cuvier at the end of the Plovers. It is a large bird, as big as a Heron

with long legs, a short hind toe raised above the ground, a moderately long, curved beak, with a wide gape; is of a brownish colour, and crested. In its anatomy it is stated to resemble Gallinaceous birds, differing in having the sternal emarginations less deep, and in a few other points. "It is," says Blyth, "essentially a Poultry-bird, with long legs."

The family MEGAPODIDÆ, or Mound-birds, belong to Australia and the Papuan province of the Malayan Archipelago, extending among the islands as far as the Nicobars. They have all very large and strong feet, with large claws, and the hind toe placed on the same plane as the others. The tail is not always developed, but, when present, consists of eighteen feathers. Some have wattles, but most are devoid of those Gallinaceous appendages. The sternum resembles in form, that of the *Cracidæ*, and the accessory plume to the body feathers is tolerably developed.

The birds of this family lay eggs of most enormous size, and of a somewhat elongated shape, with a thin shell; and they have the peculiar habit of either hatching their eggs by the heat of the sun, or by depositing them in huge masses of decaying leaves and other vegetable matter. Several pairs of birds appear to assist and lay their eggs in the same mound, and the male bird works equally with the female. The eggs are deposited at a regular depth, and at some distance from each other; and the young, when hatched, run at once. The eggs are said to be delicious eating.

Gray divides them into *Megapodinæ*, and *Talegallinæ*. The genus *Megapodius* contains a large number of species from various islands, chiefly from the more Eastern portions of the Archipelago. They are birds of plain dull greenish brown plumage, somewhat smaller than a fowl, and yet the eggs of *Megapodius nicobariensis* are as large, Mr. Blyth tells us, as those of a Pea-fowl. The *Leipoa ocellata* is the most beautiful bird of the group, and is called the Native Pheasant by Australian colonists. Gray places in this division a very remarkable bird, *Mesites variata* of Is. Geoffroy, placed by others among the Rails.

Talegalla Lathamii, the type of the other sub-family, is as large as a Turkey, and is called the Brush-turkey in Australia, from

the naked head and neck which are only clad with a few hair-like feathers; and it is, moreover, furnished with a large yellow wattle. It has bred in the Zoological Gardens of London. A second species, *T. Cuvierii*, occurs in New Guinea; and *Megacephalon maleo*, Temminck, is another bird of the same division found in Celebes.

The celebrated Lyre-bird of Australia, *Menura superba*, has so much the aspect of a Megapodine bird, that I cannot help considering it as not far removed from this family. Its extraordinary and unique tail consists of sixteen feathers, a number unknown among the *Insessores*, not one of which has more than twelve; its great size compared with that of the minute birds among which it is usually placed by systematists, viz., the Wrens and Warblers; its strong Gallinaceous legs and feet; its habit of running with facility, which it always employs in preference to flight;—all these combine to remove this bird from the *Insessores*; and its geographic relations with the *Megapodii* must also be taken into account. It is said, however, to build a neat nest on a ledge of rock; to have the power of modulating its voice, and that the young are helpless at birth. If these habits are fully confirmed, I would still prefer placing it as a separate group next the *Megapodidae*, with which it undoubtedly possesses considerable affinities; and, in the Darwinian theory of transmutation of species, it must have sprung directly from an ambitious *Megapode* which had desired to raise itself in the scale of Birds.

Fam. PTEROCLIDÆ, Sand-grouse or Rock-grouse.

Syn. *Syrrhaptidæ*, Blyth.

Bill somewhat slender and compressed; wings lengthened and pointed; tarsus short, more or less plumed; feet short; hind toe rudimentary, or wanting; tail of sixteen feathers.

This is a very distinct natural family, both in structure and habits, although placed by Gray and others as a sub-family of the *Tetraonidæ*, with which the species only agree in having a feathered tarsus. The bill is slender and nearly straight in some, thicker and more curved in others; the orbits are more or less

- nude; the wings long and pointed, with the first primary longest, or the first and second nearly equal. The tail varies, being short and slightly rounded in some, longer and graduated in others, with the medial feathers greatly lengthened in several, and much attenuated at the tips. The tarsus is short, rather slender in most, always feathered in front; the toes are short, either joined at the base by a small web, or soldered together. The feathers of the lower back and rump are not lengthened, and the clothing feathers are devoid, or nearly so, of the supplementary tuft.

The keel of the sternum is enormously developed, and the inner emargination wanting, or represented by a small oval foramen, as in Pigeons; the sternum itself is very narrow, and contracted in front: the furcula is short and wide, and does not possess the medial appendage. In their internal anatomy, they closely resemble other Gallinaceous birds.

The Sand-grouse or Rock-grouse, commonly called Rock-pigeons in India, are birds of remarkably rapid and powerful flight. They feed almost entirely on hard seeds, breed on the ground, laying usually three or four dull greenish spotted eggs; and the young run as soon as hatched. They are peculiar to the warmer regions of the Old World, being particularly abundant in Africa, and in the desert regions of Asia. Some assemble in vast flocks, and fly to great distances; others take more moderate flights. The plumage of all is pale isabelline yellow, of various shades, and more or less variegated with deep brown. Two genera only are known, one common to Africa and Asia, and the other peculiar to the highlands of Central Asia.

Gen. *PTEROCLES*, Temminck.

Char.—Bill small, slightly arched, the sides compressed; nostrils basal, almost concealed by the frontal plumes; wings long and pointed, the first and second quills longest; tail moderate, wedge-shaped or rounded, the central feathers often lengthened; tarsi feathered in front, reticulated posteriorly; the anterior toes bare, united at their base by membrane; hind toe minute, raised; the claws short, stout, very slightly curved.

In this genus the sexes differ in plumage, the males being more uniformly colored, and the females more or less spotted or barred. They are found both in Asia and Africa, one or two species being occasionally killed in the South of Europe. These are the birds termed Rock-pigeons by sportsmen in India. Blyth* retains for them the popular name of '*Ganga*,' given them originally by Buffon, but it is by no means generally known, and I prefer calling them Rock or Sand-grouse, albeit not very closely related to the true Grouse.

They sub-divide into two groups, the one with the tail-feathers regularly graduated, restricted *Pterocles*, apud Bonaparte; the other with the medial rectrices lengthened and attenuated, *Pterochlorus*, Bonaparte.

1. With the tail-feathers regularly graduated, not elongated.

1. *Pterocles arenarius*, PALLAS.

Tetrao, apud PALLAS—TEMMINCK, Pl. col. 354 and 360—BLYTH, Cat. 1489—GOULD, Birds of Europe, pl. 257—Perdix arragonica, LATHAM.—*Bukht-titar*, *Bur-titar*, *Bakht-tit*, *Buklit*, *Bukht*, *H.*, in various parts of the country; also *Ban-chur*—*Kurmor* at Peshawur (from its cry.)

THE LARGE SAND-GROUSE.

Descr.—Male, crown and middle of the nape brownish-grey with a pinkish tinge; rest of the upper parts mingled ashy and fulvous, each feather being bluish ashy in the middle, edged with fulvous, giving a mottled appearance; greater wing-coverts plain ochreous or orange buff, and the median coverts also broadly edged with the same; quills and primary coverts dark slaty, with black shafts: tail, as the back, fulvous, with black and ashy bands; all the lateral tail-feathers tipped with white; beneath, the chin is deep chesnut, passing as a band, under the ear-coverts to the nape; and below this, on the middle of the throat, is a small triangular patch of black; the breast and sides of the neck dull ashy, tinged with fulvous, with a narrow band of black on the breast; abdomen and vent deep black, under tail-coverts black, with white margins to the feathers; tarsal plumes pale yellowish.

* Bengal Sporting Review.

Bill bluish; feet dull yellow; irides dark brown. Length $12\frac{1}{2}$ to $13\frac{1}{2}$ inches; wing $9\frac{1}{4}$; tail 4; tarsus $1\frac{1}{2}$. The wings reach nearly to the end of the tail, which has the two central feathers very slightly lengthened and pointed. Weight 17 to $18\frac{1}{2}$ ounces.

The female differs in having the whole head and upper parts, with the breast, fulvous, banded with brown; the pectoral band is narrower; and between that and the black of the abdomen is unspotted; the chin is fulvous, with a narrow black edging and a few black specks; the under tail-coverts pale fulvous. She is said to be a little smaller, but one writer in the *Bengal Sporting Magazine* states that she is heavier than the male.

This fine Sand-grouse is found, within our limits, only in the N. W. Provinces and Sindh, rarely extending so low as Allahabad, tolerably abundant in the Punjab, and said to be very numerous towards the edges of the great desert. It is recorded in the *Bengal Sporting Magazine* as common in the Doab between the Ganges and Jumna, near Futteyghur, in Rohilcund, but more common west of the Jumna, near Ferozepore, in Hurriana, and in various parts of the Punjab. I have heard of its having been killed near Nusseerabad, and also in Khandeish. It is only a winter visitant to India, arriving towards the end of September, and leaving in March. It frequents extensive open sandy plains, flies in vast flocks, being said to be more abundant than *P. exustus* in those parts where it does occur. Like the others of this tribe, it goes regularly to certain spots on the banks of rivers or tanks to drink, which it does twice a day, and it is fond of basking in the sun and rolling on the sand. One writer records that he saw them about sunrise leave their roosting places among sand hills, and collect in thousands on a hard bare plain, close to where they usually drank, but that they were neither feeding nor drinking at that early hour, and came there, he suggests, for the sake of basking in the early sun's rays. It feeds on grassy plains, and also on stubble fields, and does so especially immediately after drinking.

The flight of this Sand-grouse is said to be amazingly strong and rapid, and, when roused, it flies to great distances. It is generally said to be a shy and wary bird, and difficult to approach closely, from the open nature of the country it affects. It is highly

esteemed as a game-bird, and much sought after by many sportsmen, as well for the difficulty of close access, as for its qualities on the table. It is stated that from the closeness and firmness of its plumage, it takes a good gun and heavy shot to bring it down. A writer records the great preponderance of one sex in every flock, sometimes killing seven or eight females and not one male, and *vice versâ*. The flesh is mixed brown and white on the breast, and though somewhat tough when fresh, and perhaps requiring to be skinned, it is reckoned delicious eating; indeed, one writer says that it is the finest game bird for the table in India. Shooting them from a hole dug in the ground near their drinking spots is said to be a very deadly way of making a good bag, and this I can readily believe. It is caught in the neighbourhood of Peshawur and other places in horse-hair nooses.

This Sand-grouse is common in Affghanistan, where it is called *Tuturuk* and *Boora-kurra*, or black breast, and in various other parts of Central and Western Asia, particularly in Arabia, where it is seen in flocks of millions, according to Col. Chesney; also in Northern Africa, and the South of Europe, especially in Spain, where it is said to be tolerably abundant in winter, and to be often brought to the market at Madrid. It breeds in Central Asia, and also in Africa according to Tristram, and even in Spain. This last writer states the rather strange facts that it chiefly feeds towards sunset, and that it is almost domesticated in the Court-yards of the Arabs. He also says that the flesh is white and dry. Can he be writing of the same bird?

2. *Pterocles fasciatus*, SCOPOLI.

Tringa, apud SCOPOLI—BLYTH, Cat. 1490—GOULD, Birds of Asia, pt. II. pl. 14—JERDON, Ill. Ind. Orn. pl. 10 and 36—*P. quadricinctus*, apud JERDON, Cat. 271—*Handeri*. H. in the South—*Boot-bur*, H. in the N. W.—*Sunda polanka*, Tel.

THE PAINTED SAND-GROUSE.

Descr.—Male, general ground colour bright fulvous yellow, the sides of the head, neck and breast, and shoulder of the wings plain and unspotted; the back, scapulars, tertiaries, and tail, banded

with deep brown; a narrow white band on the forehead, then a broadish black band, succeeded by another narrow white one, and then a narrow black band, widening behind the eye, and ending in a white spot; the occiput and nape with black streaks; quills brown-black, with narrow pale edgings; the median and greater coverts of the wings and some of the secondaries broadly banded with inky black, edged with white; a triple band separates the fulvous of the breast from the abdomen, the first maroon, the second creamy white, and the third unspotted chocolate brown, which is the ground colour of the abdominal region, vent, and under tail-coverts, each feather being tipped with white.

Bill red; orbital skin lemon yellow; irides dark brown; feet dull yellow; claws reddish. Length 10 inches; extent 21; wing 7; tail $3\frac{1}{4}$; tarsus $1\frac{1}{4}$; weight 7 to 8 oz.

The female differs in wanting the black and white bands on the head, the pectoral bands, and the inky-black and white bars on the wings, the whole upper surface, the sides of the neck, breast, wings, and tail, being fulvous mixed with rufous, and finely barred with black; the chin, throat, ear-coverts, and some of the greater wing-coverts are unspotted fulvous; the lower part of the breast, and the whole abdominal region very finely barred with chocolate black and creamy white.

This very beautiful Sand-grouse has been generally confounded with an African bird, *P. quadrinctus* of Temminck, from which it differs in several particulars, the chief distinction being, according to Strickland, in the African bird having the feathers of the back, scapulars, tertiaries, and greater coverts, deep glossy black.

It is found over the greater part of India, except in Malabar and Lower Bengal, but it is by no means abundant any where, and is apparently not found out of India. In some districts it is stated to occur in the rains only. I have seen it in the Carnatic, the Deccan, and Central India, and it is not unknown in the N. W. Provinces, and Adams records it as pretty common in the low jungles around the base of the Sewalik range, Punjab. It affects chiefly bushy and rocky hills, and, unlike any others of its genus, is often found in tolerably thick cover. It is found generally in pairs, occasionally towards the end of the rains in parties of eight to

ten ; when flushed, rises with a low chuckling call, takes a short flight at no great elevation, and drops into cover again. I have very rarely seen it among rocks, where there was little or no jungle. I have had the eggs brought me, very cylindrical in form, of a dull earthy green with a few dusky spots. On several occasions I have observed in this species crepuscular, if not nocturnal habits. On one of these several flew round a field on which I was encamped, near the Nerbudda, late one evening when nearly dark, alighting every now and then, and again resuming their flight, which, being particularly noiseless, led me to take it for some kind of *Caprimulgus* at first ; and more than once I again noticed similar habits.

P. Lichtensteini is not unlike *P. fasciatus*, but differs in being larger, with the nape, front and sides of neck, and the fore part of the wing, prettily variegated. It is common in Arabia, and may occur as a straggler in Sindh, or in the Western Punjab.

With the medial tail-feathers greatly lengthened (*Pteroclorus*, Bonap.)

3. *Pterocles alchata*, LINNÆUS.

Tetrao, apud LINNÆUS—BLYTH, Cat. 1491—Tet. chata, PALLAS—GOULD, Birds of Europe, pl. 258—‘Solitary Rock-pigeon’ of some sportsmen.

THE LARGE PIN-TAILED SAND-GROUSE.

Descr.—Forehead and supercilia rusty fulvous, with a black stripe behind the eye ; top of the head and nape fulvous with black bands ; the general hue above, including the scapulars and shoulders of the wings, is fulvous olive or greyish olive, shaded with fuscous ; the scapulars with a few black spots ; rump and upper tail-coverts bright pale fulvous with narrow black bars ; lesser and median wing-coverts maroon, white tipped ; secondary coverts fulvous with black lunules ; greater coverts and primaries slaty blue on their outer webs, brown internally ; tail banded yellow and black ; the median pair blackish on their attenuated portion ; the outer feathers greyish, white tipped and edged ; beneath, the chin and throat are black, edged with rusty ; lores and face rufous

yellow, with a blackish space round the eyes; breast pale fulvous, with a double black band, each of them narrow; abdomen, vent, and lower tail-coverts white, the latter slightly black barred; tarsal plumes whitish.

Bill very stout, horny brown; irides brown; feet plumbeous. Length about $15\frac{1}{2}$ inches; wing 8; tail $6\frac{1}{2}$; tarsus $1\frac{1}{4}$.

The female differs in having the upper plumage barred with black and fulvous, with some dusky ashy spots on the back and scapulars; the lesser and median wing-coverts ashy, with oblique rufous and black lunules; the throat white; a broad blackish demi-collar on the neck, followed by an ashy band tinged with rufous. The median tail-feathers are stated to be nearly as long as in the male bird.

This species of Sand-grouse is a well known inhabitant of Northern Africa, Western Asia, and the South of Europe, especially in Spain, Sicily, the Levant, &c.; and it extends through Central Asia into the Punjab and Sindh. It is, however, a rare bird comparatively in India, only a few finding their way across the Sutlej. It is recorded to have been killed at Hansi. I presume that like *P. arenarius* it is migratory to this country, and only found in the cold season. It is a very beautiful bird, and the bill is much thicker and stronger than that of any other of the genus.

It has a peculiar call, something like *kaa-kia*, said to be not unlike the call of the Jackdaw; it flies in flocks of from ten to seventy or more, and is said to be very shy and wary, and more difficult to approach than the large Sand-grouse. Its specific appellation is taken from its Arabic name *El-chata* or *El-katta*, which however is also applied to *P. arenarius*. I have seen no notice of any native name in this country for this species, and imagine that it is called by the same names, as *P. arenarius* and *P. exustus*. From this last it may be at once distinguished by its somewhat larger size, stronger bill, and white belly. It breeds among rocks in Central and Western Asia, Northern Africa and the South of Europe, laying four or five eggs of a reddish grey colour, with brownish spots.

It is said to swarm in countless numbers in Palestine, and Mr. Blyth believes, and with justice, that this bird rather than the

Coturnix communis is the 'Quail' of the Israelites. Col. Chesney, indeed, writes of it as a kind of Quail about the size of a Pigeon, which at times literally darkens the air with its numbers.

4. *Pterocles exustus*, TEMMINCK.

Pl. Col. 354, 360—GOULD, Birds of Asia, pt. II. pl. 13—BLYTH, Cat. 1492—JERDON, Cat. 270—SYKES, Cat. 161—*Bar-titar*, *Bakht-titar*, *Kumar-tit*, H.—*Kuhar*, H. in the N. W. P.—*Jam polanka*, Tel.—*Kal koudari*, Tam.—Rock-pigeon of sportsmen in India.

THE COMMON SAND-GROUSE.

Descr.—Male, general colour fulvous isabelline, brighter and more yellow about the lores, face, and chin, and mixed with dusky greenish on the back, wings, and upper tail-coverts; primaries black, the tips of all, except the first three, white, broader on the inner web; a longitudinal median line on the wing, formed by some of the coverts and secondaries being brighter buff; tail with the central pair of feathers elongated and highly attenuated, isabelline yellow; the lateral feathers deep brown, edged and tipped with pale fulvous; a narrow black band in the breast; abdomen deep chocolate brown (burnt or singed colour, hence *exustus*), paling on the vent, and the under tail-coverts creamy white, as are the tarsal plumes.

Bill leaden; orbits lemon yellow; irides dark brown; feet plumbeous. Length 13 inches; wing $7\frac{1}{2}$; tail $5\frac{1}{2}$ to 6; tarsus $1\frac{1}{2}$. Weight 8 to 9 oz.

The female has the whole upper plumage, including the tail-feathers (except a plain bar on the wing formed by the greater coverts) fulvous, closely barred with deep brown; also the space between the pectoral band and the abdomen; neck and breast unspotted dingy isabelline, and abdomen as in the male. The central rectrices are not elongated.

This is the most common and abundant species of Sand-grouse throughout India, being found in every part of the country, except the more wooded portions, and never occurring in forest districts. It is, therefore, quite unknown in Malabar, in the wooded districts of Central India, and in Lower Bengal; and neither this, nor any

of the previous species, as far as is known, occur to the eastwards, in Assam, Sylhet, or Burmah. Out of India, it is common through great part of Central and Western Asia, and Northern Africa, and it is stated to have occurred rarely in Europe.

This Sand-grouse frequents the bare open plains, whether rocky or otherwise, and is very partial to ploughed lands and bare fallow fields. It feeds chiefly in the morning, and between 8 and 9 A. M. goes to drink at some river or tank, at which, in some parts of the country, thousands assemble, and they may be seen winging their way in larger or smaller parties from all quarters, at a great height, uttering their peculiar loud piercing call, which announces their vicinity to the sportsman long before he has seen them. They remain a few minutes at the water's edge, walking about and picking up fragments of sand or gravel, and then fly off as they came. In the hot weather, at all events, if not at all seasons, they drink again about 4 P. M. When they are seated on bare sandy or rocky ground, they are most difficult to observe, from the similarity of their color to the ground; sometimes they can be approached with ease near enough to get a good shot, at other times, especially if in large flocks, they are shy and wary. A small flock or single birds can often be approached very close by walking rapidly, not straight, but gradually edging towards them; and, in this way, I have often walked up to within two or three yards of them. They feed on various hard seeds, especially on those of various *Alysicarpi*, *Desmodium*, &c., as well as on grass seeds or grain.

These Sand-grouse breed in the Deccan and Southern India from December to May, and in Central India still later. In some parts of the country, as at Mhow and Saugor, most of them leave the district after breeding in July, and do not return till the end of the rains. The eggs are laid on the bare ground, three or four in number, of cylindrical form, nearly equally thick at both ends, of a greenish stone colour, thickly spotted with grey and brown.

This bird, if kept long enough, is very excellent eating, though the flesh is somewhat hard and tough, but with a high game flavour; and the young birds, when nearly full grown, are most excellent.

A somewhat allied species, *Pterocles senegallus*, Lin., of which *P. guttatus*, Licht., is the female, is common in Eastern Africa and Arabia, &c., and has been figured by Gould in his Birds of Asia, pt. III. pl. 6. Mr. Blyth was assured by a sportsman to whom he showed specimens, that this species occurred in Sindh, and was even more common there than *P. exustus*; however, as no Indian examples have been examined, I cannot at present include it among the 'Birds of India.' The male resembles *P. exustus*, but is somewhat larger; and both sexes have the throat and sides of the neck very bright pale orange buff; above and behind this colour the male has the sides of the head and nape of a pure ash-grey; there is no black bar on the breast, and the middle of the abdomen only is sooty black. The female is curiously dotted over with dusky grey upon a light buff, almost cream-coloured ground.

Several other species of *Pterocles* occur in Africa, one of which, *P. coronatus*, has been found in Western Asia, and is figured by Gould in his Birds of Asia, pt. III. pl. 7.

The genus *Syrrhaptes* differs from *Pterocles* in having the feet much smaller, joined together at the base, feathered to the claws, and no hind toe; the first two wing primaries, too, are lengthened and attenuated. It was founded on *Tetrao paradoxus*, of Pallas, a very handsome bird, inhabiting the desert regions of Central Asia, which, strange to say, was lately killed in England, a notice of which, with a very beautiful figure, appeared in the Ibis for 1862.

A second species has been found by several of our Indian sportsmen just across the Himalayas, but not hitherto on the Indian side, *Syrrhaptes Tibetanus*, Gould. It has been observed chiefly in Ladak, is said to occur in small parties of nine or ten; and to have a loud cry *yák, yák, yák*. It has the upper parts and breast minutely mottled with zig-zag markings, the throat and sides of the neck ochre yellow; the wings sandy yellow with some black markings on the scapulars; and the lower parts white. Length 20 inches; wing 11; tail $7\frac{1}{2}$.

We next come to the more typical *Gallinacei*, with the supplementary plumage well developed.

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Fam. PHASIANIDÆ.

Bill moderate, strong, vaulted, the tip of the upper mandible produced over that of the lower, sides more or less compressed; nostrils apart; wings moderate or short, rounded; tail (typically) lengthened and broad, of from twelve to eighteen feathers; tarsus moderate or long, usually spurred in the males; toes long, anterior ones united by a short membrane at the base; the hind toe raised, short, sometimes resting on the ground by its point.

This family, as here restricted, comprises the Pea-fowls, Pheasants, Jungle-fowl, and Spur-fowl, all of which are peculiar to Asia, and more especially to India, including Burmah and Malayana. Some include in this family the Turkeys of America, but I prefer placing them as a distinct, it may be a subordinate group. As distinguished from the next family, *Tetraonidæ*, they are characterized by a generally more lengthened bill, the nostrils always apart, the face more nude, the head often furnished with variously formed crests of feathers, or of nude skin, or with lappets and wattles, in some cases of erectile tissue, the tail typically is longer, and more commonly raised; and the tarsus perhaps more generally lengthened, and furnished with spurs. In their habits they more habitually frequent forests, jungles, and thick covert; whilst the *Tetraonidæ* more affect open grass ground, fields, and sometimes low jungle. Most of the Pheasants, too, perch freely on trees, and roost habitually thereon, this habit being the exception among the Grouse and Partridges. On these grounds, as well as on that of different geographical distribution, I prefer retaining the two families distinct, in accordance with most Ornithologists, notwithstanding the fact of certain genera of each family interbreeding with each other.

The Indian *Phasianidæ* may be popularly divided into Pea-fowl, Pheasants, Jungle-fowl, and Spur-fowl; and, although the limits of each are somewhat vague, I shall give these groups the rank of sub-families in accordance with some of our systematic Works on Ornithology.

Sub-fam. PAVONINÆ,—Pea-fowl.

Syn. *Pavonidæ*, Bonap.

Plumage more or less ocellated. Inhabit India and Burmah with Malayana, not extending into the Himalayas.

Gen. PAVO, Linnæus.

Char.—Bill lengthened, slender; the nareal portion large; nostrils linear; head ornamented with an erect crest of feathers of a peculiar structure; orbital region naked; tail moderately long, of eighteen feathers; feathers of the back and upper tail-coverts of great length, long, surpassing the tail, and beautifully ocellated; tarsi rather long, spurred in the male.

The Peacock is too well known to require any remarks on his general structure and appearance. But two species are known, the one inhabiting India Proper, the other Assam, Burmah, and parts of Malayana.

.5. *Pavo cristatus*, LINNÆUS.

Pl. enl. 433, 434—BLYTH, Cat. 1449—JERDON, Cat. 265—SYKES, Cat. 146—*Mor*, *Mhor*, H. Beng. and Mahr. also *Manjur*, H. —*Nimili*, Tel.—*Myl*, Tam.—*Mab-ja*, Bhot.—*Mong-yung*, Lepch.

THE COMMON PEACOCK.

Descr.—Male, head, neck, and breast rich purple, with gold and green reflections; back green, the feathers scale-like, with coppery edges; the wings, with the inner-coverts, including the shoulder, white, striated with black; the middle coverts deep blue; the primaries and tail chesnut; abdomen and vent black, the train chiefly green, beautifully ocellated; the thigh coverts yellowish grey; head with a crest of about 24 feathers, only webbed at the tip, and green with blue and gold reflections.

Bill horny brown; naked orbits whitish; irides dark brown; legs horny brown. Length to the end of the true tail $3\frac{1}{2}$ to 4 feet; wing 18 inches; tail 24; the long train sometimes measures $4\frac{1}{2}$ feet and even more.

The Peahen is chesnut brown about the head and nape, the neck greenish, edged with pale whity brown; the upper plumage light hair-brown, with faint wavings, increased on the upper tail-

coverts; quills brown; some of the wing-coverts mottled dusky and whitish; tail deep brown with whitish tips; chin and throat white; breast as the neck; abdomen white, with the lower parts and under tail-coverts brown.

Length 38 to 40 inches; wing 16; tail 14. The crest is shorter and duller in its tint than in the male.

The Pea-fowl is too well known to require a more ample description. It inhabits the whole of India Proper, being replaced in Assam and the countries to the East by another species. It frequents forests, and jungly places, more especially delighting in hilly and mountainous districts; and, in the more open and level country, wooded ravines and river banks are the never failing resort. It comes forth to the open glades and fields to feed in the morning and evening, retiring to the jungles for shelter during the heat of the day, and roosting at night on high trees. It ascends the Neilgherry and other mountain regions in Southern India to 6,000 feet or so of elevation, but it does not ascend the Himalayas, at all events in Sikim, beyond 2,000 feet. In many parts of the country it is almost domesticated, entering villages and roosting on the huts, and it is venerated by the natives in many districts. Many Hindoo temples have large flocks of them; indeed, shooting it is forbidden in some Hindoo States. The Pea-fowl breeds, according to the locality from April till October, generally in Southern India towards the close of the rains, laying from 4 to 8 or 9 eggs in some sequestered spot. The Peacock during the courting season raises his tail vertically, and with it of course the lengthened train, spreading it out and strutting about to captivate the hen birds; and he has the power of clattering the feathers in a most curious manner.

It is a beautiful sight to come suddenly on twenty or thirty Pea-fowl, the males displaying their gorgeous trains, and strutting about in all the pomp of pride before the gratified females. The train of course increases in length for many years at each successive moult, but it appears to be shed very irregularly.

Though it cannot be said to be a favorite game with Sportsmen in India, yet few can resist a shot at a fine Peacock whirring past

when hunting for small game; yet Pea-chicks are well worth a morning's shikar for the table, and a plump young Peahen if kept for two or three days, is really excellent. An old Peacock is only fit to make soup of. A bird merely winged will often escape by the fleetness of its running. They generally roost on particular trees, and by going early or late to this place, they can readily be shot. Pea-fowl are easily caught in snares, common hair-nooses, and are generally brought in alive, for sale in numbers, in those districts where they abound. In confinement they will destroy snakes and other reptiles, and in their wild state feed much on various insects and grubs, also on flower buds and young shoots, as well as on grain.

The Burmese Pea-fowl, *Pavo muticus*, Linnæus, (*P. assamicus*, McLelland,) notwithstanding the Linnæan name, has spurs; its crest is quite different in structure from that of *cristatus*, being composed of about ten or more slender barbed feathers. Though not so showy as the common Peacock, it is, perhaps, a still more beautiful bird, having more green and gold and less blue in its plumage. It is found in all the countries to the Eastwards, from Assam southwards through Burmah to Malacca, and many of the Islands. Hybrids between the two species are not rare in Aviaries.

Near the Pea-fowl should be placed the genus *Polyplectron* or Pea-pheasants, often called Argus Pheasants. The males are very beautifully adorned with green or pink ocelli over the body, wings, and tail, which consists of sixteen feathers. The tarsi are armed with two or even three spurs in the male. They are peculiar to the Indo-Chinese countries, and Malayana, one species *Polyplectron tibetanum*, (*chiquis*, Temminck, Pl. col. 539), occurring in the hilly regions of upper Assam, Sylhet, Tipperah and Chittagong, extending through Burmah to Tenasserim. The female is *P. lineatum* figured in Hardwicke, Ill. Ind. Zool. Another species, *P. bicalcaratum*, L., is found in Malacca, Sumatra, &c.; and a very beautiful species, *P. napoleonis*, Massena, (*emphanum*, Temm.) is probably from Borneo. A fourth species without spots, *P. chalcurus* T., has been separated by Bonaparte as *Chalcurus*. It appears to me that *Perdix concentrica* of Gray, in

Hardwicke's Ill. Ind. Zool., is a bad figure of some female *Polyplectron*.

With Bonaparte I would class here, rather than with the Pheasants, the real Argus Pheasant, *Argusanus giganteus*, Temm., (*Pavo argus*,) L., of the Malay Peninsula as far north as Mergui, Sumatra, and some of the Islands. The race from Borneo is stated to differ somewhat. In this magnificent bird the secondary quills are longer than the primaries, and all beautifully covered, as well as the tail, with fine ocelli. The tail consists of only twelve feathers. It does not occur in Sylhet as stated by Hardwicke in his MSS. in the British Museum.

Sub-fam. PHASIANINÆ, Pheasants.

Tail typically long, with the central feathers sometimes of great length; plumage rarely ocellated; tail in most of eighteen feathers; head more or less crested.

Among the Pheasants, I include the Monaul, the Horned Pheasants, the Pucras, the true Pheasants, the Gold and Silver Pheasants, the Snow Pheasants, the Blood Pheasants, and the Kalij Pheasants, which last form the link to the next group, the Jungle-fowl and Fire-backs. These are all inhabitants of the highlands of Central Asia, the Himalayas and China, and do not (with the exception of one member of the *Kalij* group) extend into the Burmese province, and not at all into Malayana.

I shall commence the series with the Monaul, which, by the form of its crest and its rich metallic colours, approaches nearest to the Peacocks.

Gen. LOPHOPHORUS, Temminck.

Syn. *Monaulus*, Vieillot—*Impeyanus*, Lesson.

Char.—Head with a Peacock-like crest of several feathers, bare on the shaft, feathered and lanceolate at the tip only; orbits bare; bill somewhat lengthened, the tip projecting and hooked; tarsus of the male with one rather short spur; tail short, nearly even, or slightly rounded, of sixteen feathers.

Plumage rich metallic green and gold, with a rufous tail.

This genus consists of but one species, the most gorgeous perhaps of the family, whose colors and metallic brilliancy rival those of the Humming-birds.

6. *Lophophorus Impeyanus*, LATHAM.

Phasianus, apud LATHAM—BLYTH, Cat. 1477—*L. refulgens*, TEMM.—GOULD, Cent. Him. Birds, pl. 60 and 61—GOULD, Birds of Asia, pt. II. pl. 7—*Monal, Ghur Monal, Rutnal—Ratkap, Rattea-kowan*, in various dialects in the N. W. Himalayas. *Lont* (the male), *Ham* (the female) in Cashmere—*Murgh-i-zari* or the Golden Fowl of some—*Phodong-pho*, Lepch.—*Chamdong*, Bhot.

THE MONAUL PHEASANT.

Descr.—Male, head with the crest and throat bright metallic green; back of the neck brilliant iridescent purple, passing into bronzy green, and all with a golden gloss; upper part of the back and wing-coverts, rump, and upper tail-coverts, richly glossed with purple and green, the latter colour prevailing on the wings and furthest tail-coverts, and the purple on the back and rump; middle of the back white; quills black; tail cinnamon rufous; the whole lower surface black, glossed on the throat with green and purple, dull and unglossed elsewhere.

Bill dark horny; naked orbits blue; irides brown; legs dull ashy green. Length 27 to 29 inches; extent 36; wing $11\frac{1}{2}$ to 12; tail $8\frac{1}{2}$; tarsus $2\frac{3}{4}$; middle toe and claw 3. Weight $4\frac{1}{2}$ lbs.

The female has the chin and throat white; the whole of the rest of the body pale buffy brown, with dark brown spots, bars, and undulations; the primaries blackish, the secondary quills barred black and rufous; tip of the tail and outer edges of the last tail-coverts whitish.

Length about 24 inches; wing 11; tail $7\frac{1}{2}$.

The young males for the first year nearly resemble the females, but may easily be distinguished by the white feathers on the chin and throat being spotted with black; the vent feathers are also marked with the same, and the whole plumage is darker. When changing their plumage to the adult, they appear spotted all over

with glossy metallic green. In the second year, they are stated to assume the adult plumage, with the curious exception, according to Mountaineer, of the 7th primary which retains the brown for another year.

This splendid Pheasant is found throughout the whole extent of the Himalayas, from the hills bordering Affghanistan as far east as Sikim, and probably also to Bootan. It occurs from a level of 6,000 or 7,000 feet in winter, to the limits of the wooded regions, and is most numerous at high altitudes, and in the interior of the hills. In Sikim it is not found at a lower level than 10,000 feet, and has not been found in British territory, but in the interior, at high elevations, it is not very rare, though apparently not so common as in the N. W. Himalayas. For an admirable and full account of its habits, I take the liberty of transcribing a great portion of Mountaineer's remarks in the *Bengal Sporting Review*, New Series, vol.

“The Monaul is found on almost every hill of any elevation, from the first great ridge above the plains to the limits of the wooded district, and in the interior it is the most numerous of the game birds. When the hills near Mussooree were first visited by Europeans, it was found to be common there, and a few may still be seen on the same ridge eastwards from Landour. In summer, when the rank vegetation which springs up in the forest renders it impossible to see many yards around, few are to be met with, except near the summits of the great ridges jutting from the snow, where in the morning and evening, when they come out to feed, they may be seen in the open glades of the forest and on the green slopes above. At that time no one would imagine they were half so numerous as they really are; but as the cold season approaches, and the rank grass and herbage decay, they begin to collect together, the wood seems full of them, and in some places hundreds may be put up in a day's work. In summer the greater number of the males and some of the females ascend to near the limits of the forests where the hills attain a great elevation, and may often be seen on the grassy slopes a considerable distance above. In autumn they resort to those parts of the forests where the ground is thickly covered with

decayed leaves, under which they search for grubs; and descend lower and lower as winter sets in, and the ground becomes frozen or covered with snow. If the season be severe, and the ground covered to a great depth, they collect in the woods, which face to the south or east, where it soon melts in the more exposed parts, or descend much lower down the hill, where it is not so deep, and thaws sufficiently to allow them to lay bare the earth under the bushes and sheltered places. Many, particularly females and young birds, resort to the neighbourhood of the villages situated up in the woods, and may often be seen in numbers in the fields. Still in the severest weather, when fall after fall has covered the ground to a great depth in the higher forests, many remain there the whole winter; these are almost all males and probably old birds. In spring, all in the lower parts, gradually ascend as the snow disappears.

"In the autumnal and winter months, numbers are generally collected together in the same quarter of the forest, though often so widely scattered that each bird appears to be alone. Sometimes you may walk for a mile through a wood without seeing one, and suddenly come to some part, where, within the compass of a few hundred yards, upwards of a score will get up in succession; at another time, or in another forest, they will be found dispersed over every part, one getting up here, another there, two or three further on, and so on for miles. The females keep more together than the males; they also descend lower down the hills, and earlier and more generally leave the sheltered woods for exposed parts or the vicinity of the villages on the approach of winter. Both sexes are often found separately in considerable numbers. On the lower part, or exposed side of the hill, scores of females and young birds may be met with, without a single old male; while higher up, or on the sheltered side, none but males may be found. In summer they are more separated, but do not keep in individual pairs, several being often found together. It may be questioned whether they do pair or not in places where they are at all numerous; if they do, it would appear that the union is dissolved as soon as the female begins to sit, for the male seems to pay no attention whatever to her whilst sitting, or to the young brood

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when hatched, and is seldom found with them. The call of the Monaul is a loud plaintive whistle, which is often heard in the forest at daybreak or towards evening, and occasionally at all hours of the day. In severe weather, numbers may be heard calling in different quarters of the wood before they retire to roost. The call has a rather melancholy sound, or it may be, that as the shades of a dreary winter's evening begin to close on the snow-covered hills around, the cold and cheerless aspect of nature, with which it seems quite in unison, makes it appear so.

“From April to the commencement of the cold season, the Monaul is rather wild and shy, but this soon gives way to the all-taming influence of winter's frosts and snows; and from October it gradually becomes less so, till it may be said to be quite the reverse; but as it is often found in places nearly free from under-wood, and never attempts to escape observation by concealing itself in the grass or bushes, it is perhaps sooner alarmed, and at a greater distance than other Pheasants, and may therefore appear at all times a little wild and timid. In spring, it often rises a long way in front, and it is difficult to get near it when it again alights, if it does not at once fly too far to follow; but in winter, it may often be approached within gunshot on the ground, and when flushed it generally alights on a tree at no great distance, and you may then walk quite close to it before it again takes wing.

“In the forest, when alarmed, it generally rises at once without calling or running far on the ground; but on the open glades or grassy slopes, or any place to which it comes only to feed, it will, if not hard pressed, run or walk slowly away in preference to getting up; and a distant bird, when alarmed by the rising of others, will occasionally begin and continue calling for some time while on the ground. It gets up with a loud fluttering and a rapid succession of shrill screeching whistles, often continued till it alights, when it occasionally commences its ordinary loud and plaintive call, and continues it for some time. In winter, when one or two birds have been flushed, all within hearing soon get alarmed; if they are collected together, they get up in rapid succession; if distantly scattered, bird after bird

slowly gets up ; the shrill call of each as it rises alarming others still further off, till all in the immediate neighbourhood have risen. In the chesnut forests where they are often collected in numerous bodies, where there is little underwood, and the trees, thinly dispersed and entirely stripped of their leaves, allow of an extensive view through the wood, I have often stood till twenty or thirty have got up and alighted on the surrounding trees, then walked up to the different trees, and fired at those I wished to procure, without alarming them, only those close being disturbed at each report. In spring they are more independent of each other's movements, and though much wilder, are more apt to wait till individually disturbed. When they alight in the trees, and are again flushed, the second flight is always a longer one. When repeatedly disturbed by the sportsmen or shikaries, they often take a long flight in the first instance. The seasons also have great influence over them in this respect, as well as in their degree of tameness or wildness. In spring, when the snow has melted in every part of the forest, and they have little difficulty in procuring an abundance of food, they appear careless about being driven from any particular spot, and often fly a long way ; but in winter, when a sufficiency of food is not easily obtained, they seem more intent on satisfying their hunger, and do not so much heed the appearance of man. The females appear at all times much tamer than the males. The latter have one peculiarity, not common in birds of this order : if intent on making a long flight, an old male after flying a short way, will often cease flapping his wings, and soar along with a trembling vibratory motion at a considerable height in the air, when, particularly if the sun be shining on his brilliant plumage, he appears to great advantage, and certainly looks one of the most magnificent of the Pheasant tribe.

“ In autumn, the Monaul feeds chiefly on a grub or maggot which it finds under the decayed leaves ; at other times on roots, leaves, and young shoots of various shrubs and grasses, acorns and other seeds and berries. In winter, it often feeds in the wheat and barley fields, but does not touch the grain ; roots and maggots seem to be its sole inducement for digging amongst it. At all times and in all seasons, it is very assiduous in the operation of digging, and con-

tinues at it for hours together. In the higher forests, large open plots occur quite free from trees or underwood, and early in the morning or towards evening, these may often be seen dotted over with Monauls, all busily engaged at their favourite occupation.

"The Monaul roosts in the larger forest trees, but in summer when near or above their limits, will often roost on the ground in some steep, rocky spot. The female makes her nest under a small overhanging bush or tuft of grass, and lays five eggs of a dull white, speckled with reddish brown; the chicks are hatched about the end of May. The flesh is considered by some as nearly equal to Turkey, and by others as scarcely eatable. In autumn and winter, many, particularly females and young birds are excellent, and scarcely to be surpassed in flavour or delicacy by any of the tribe; while from the end of winter most are found to be the reverse. They are easily kept in confinement, and I would imagine, might, without much difficulty, be naturalized in Europe."

The Monaul has lately bred in the Zoological Gardens of London, as well as, some years previously, in those of the Earl of Derby. The latter, in a communication to Mr. Gould, stated that one female laid thirteen or fourteen eggs on one occasion; and that the eggs were very pale buff, with small spots of reddish brown, very like those of the Capercailzie. They were figured in Jardine's tributions to Ornithology for 1850.

Near the Monaul perhaps should be placed the Snow-pheasants, *Crossoptilon*, with two species, *C. auritum*, Pallas, and *C. tibetatum*, Hodgson. These beautiful birds are white, with the tail glossy blue green, and are both from the highlands of Central Asia. Gray, in his List of Genera, places them between *Pucrasia* and *Gallophasis*, but Bonaparte places them together in his section *Lophophoreæ* of his *Lophophorinæ*.

Next come the Horned-pheasants of the Himalayas and Central Asia.

Gen. CERIORNIS, Swainson.

Syn. *Tragopan*, Cuvier—*Satyra*, Lesson—*Ceratornis*, Cabanis.

Char.—Bill rather short, head with two small erectile fleshy processes (horns) terminating the naked orbits; crown of the head

crested; throat with a naked expansile gular wattle; tail short, broad, of eighteen feathers; tarsi short, robust. Plumage of the male more or less red, with numerous white spots.

These are birds of rather large size and heavy form, with short tails, found only in the higher regions of the Himalayas and Central Asia. The type was described originally by Linnæus as a Turkey, from the naked wattles on the head and throat; and Gould considers it to have considerable affinity for that genus, together with some characters that indicate a relationship to *Namida*, and even to *Francoelinus* (*Galloperdix*?). Gray places them among the Jungle-fowl; but from their geographical distribution, I prefer keeping them among the Pheasants. Four species are now known, two of which are peculiar to the Himalayas, and two to the Thibetan side of that range. They are popularly called Argus Pheasants by Sportsmen.

7. *Ceriornis satyra*, LINNÆUS.

Meleagris, apud LINNÆUS—GOULD, Cent. Him. Birds., pl. 62—BLYTH, Cat. 1453—*Satyra Lathamii*, and *S. Pennantii*, GRAY, HARDWICKE, Ill. Ind. Zool., pl. 49 and 51—*S. cornuta*, GRAY—*Tirriak-pho*, Lepch.—*Bup*, Bhot.—*Dafsa*, Beng.—‘Monaul’ popularly by Europeans at Darjeeling, or Argus Pheasant.

THE SIKIM HORNED PHEASANT.

Descr.—Forehead, nape, and sides bordering the nude parts, black; crest formed of slender hair-like feathers, black in front, red behind; back, rump, wings, and upper tail-coverts brown, finely barred with black, with a white ocellus, which on the wing-coverts and the sides of the rump are inserted on a maronne red spot at the tip of each feather; quills dark brown, with dark rufous bands and bars; shoulders of wings bright fiery red, unspotted; the sides of the upper tail-coverts olive fulvous, with black tips; tail black, with numerous narrow dark rufous bars, more marked at the base and on the sides; sides and back of neck, breast, and all the lower parts, fine rich crimson red, with white spots mostly edged with deep black.

Bill brown; orbits, erectile horns, and neck and throat, fine blue, here and there spotted with orange; the skin of the throat

loose at the sides, dilatable, wrinkled, and with a few scattered hairs; when excited of a deeper blue with crimson bars; irides deep brown; legs yellowish brown. Length about 27 inches; wing 11; tail 11; tarsus $3\frac{1}{4}$; weight about $4\frac{1}{2}$ lbs.

The female is brown throughout with dark mottlings, and with some faint white lines on the upper back, and wing-coverts, being the representative of the white ocelli of the male; quills chestnut banded with dusky; chin albescent; beneath, the white lines increase in size from the breast, and are large on the belly and vent.

Length about 24 inches; wing 10; tail 10. Young males resemble females; and when in a state of change, have red spots on the neck, wings and lower parts. In winter, after the breeding season is over, the naked parts about the head and neck diminish in size, or almost disappear.

This species of Horned-pheasant is found in the Nepal and Sikim Himalayas, and was the first species known to naturalists. It appears to be very abundant in Nepal, and it is not rare in Sikim at considerable elevations. I have seen it at about 9,000 feet in spring, and in winter it descends to between 7,000 and 8,000 feet in the vicinity of Darjeeling, and perhaps lower in the interior. It is frequently snared by the Bhotees and other Hill-men, and brought alive for sale to Darjeeling. Its call, which I have heard in spring, is a low deep bellowing cry, sounding like *waa-ung*, *waa-ung*. Its general habits are no doubt similar to those of the next species which have been more accurately observed.

8. *Ceriornis melanocephala*, GRAY.

Satyra apud GRAY—BLYTH, Cat. 1452—Tragopan Hastingii, VIGORS—GOULD, Cent. Him. Birds, pl. 63, 64, 65—Phas. nipalensis, GRAY (the female)—HARDWICKE, Ill. Ind. Zool. 1. pl. 46, 47, 48 and 2 pl. 40—*Jewar*, or *Jowar*, *Jowahir*, *Jwyr*, as variously written, in the N. W. Himalayas, *Jahgi* at Simla—*Lungi*, in Kumaon—*Sing monal*, i. e. the Horned Monaul,—‘*Argus Pheasant*’ of Europeans at Simla and elsewhere.

THE SIMLA HORNED PHEASANT.

Descr.—Male, head black, the crest tipped with red ; nape, back, and sides of neck, dark-red ; back and upper parts dark brown, minutely barred irregularly with black, each feather with a round white spot on a deep black ground ; shoulder of wing dark red ; quills blackish, with brown mottlings and bars, and some dusky olive spots on some of the wing-coverts ; tertiaries mottled like the back, and with the scapulars, having a large white spot ; upper tail-coverts lengthened, the lateral feathers with a large fulvous tip edged dull black, and white spotted ; tail black, unspotted towards the tip, but barred with whity brown for the greater part of its length ; beneath, the throat and neck below the wattle are vivid scarlet, passing into flame colour and yellow on the lower part of the neck, these feathers being of a hard, firm, and somewhat horny texture ; the breast and lower parts black, dashed with dull red, and each feather with a round white spot ; the thigh-coverts mottled black and brown, paler and yellowish near the joint.

Bill blackish ; irides hazel brown ; naked orbits bright red, two fleshy horns pale blue ; the gular wattle purple in the middle, spotted and edged with pale blue, and fleshy on the sides ; legs and feet fleshy. Length 27 to 29 inches ; extent 37 ; wing $11\frac{1}{4}$; tail $10\frac{1}{2}$ to 11 ; tarsus 3 ; weight $4\frac{1}{2}$ lbs.

The female has the head and all the upper parts mottled with dark and light brown and blackish, with small pointed streaks of pale yellow ; quills and tail dark brown, minutely mottled and barred ; the lower parts light ashy brown, very minutely powdered with blackish, and marked with irregular spots of white, very strongly so on the breast, less so on the abdomen, and becoming more ashy. The horns and fleshy wattles also are absent. Length about 24 inches ; extent 32 ; wing 10 ; tail 9 ; legs and feet greyish ashy.

The young male is at first colored like the female ; in the second year the head and neck become red, and the white spots appear ; and in the third year, he gets the full plumage. In Hardwicke's Illustrations there is the figure of a young male in the second year called *Phas. melanocephalus*, female ; and in Gould's Century,

pl. 64 what is there called the young male appears rather to be a cock bird in winter plumage, with the wattles not developed, and the horns shrivelled up; for Mountaineer tells us that 'the flap of skin and the horns are either cast or shrink up every year in moulting, and do not attain any size again till the ensuing spring.' In this figure, too, the red tip of the crest is very apparent, whilst in the figure of the so called adult male it is totally absent.

This very handsome Horned-pheasant is found from the Western borders of Nepal to the extreme North-West Himalayas. It is stated not to be a very common bird about Simla and Mussooree, but more abundant near Almora. "Its usual haunts" says Mountaineer, "are high up, not far from the snows, in dense and gloomy forests, either alone, or in small scattered parties. In winter they descend the hills, and then their favorite haunts are in the thickest parts of the forests of Oak, Chesnut, and Morenda Pine, where the box-tree is abundant, and where under the forest trees a luxuriant growth of 'Ringall' or the hill Bamboo forms an underwood in some places almost impenetrable. They keep in companies of from two or three to ten or a dozen or more, not in compact flocks, but scattered widely over a considerable space of forest, so that many at times get quite separated, and are found alone." If undisturbed, however, they generally remain pretty close together, and appear to return year after year to the same spot, even though the ground be covered with snow, for they find their living then on the trees. If driven away from the forest by an unusually severe storm, or any other cause, they may be found at this season in small clumps of wood, wooded ravines, patches of low brush-wood, &c.

"At this season, except its note of alarm, when disturbed, the Jewar is altogether mute, and is never heard of its own accord to utter a note or call of any kind; unlike the rest of our Pheasants, all of which occasionally crow or call at all seasons. When alarmed it utters a succession of wailing cries, not unlike those of a young lamb or kid, like the syllable "*waa, waa, waa,*" each syllable uttered slowly and distinctly at first, and more rapidly as the bird is hard pressed or about to take wing. Where not

repeatedly disturbed, it is not particularly shy, and seldom takes alarm till a person is in its immediate vicinity, when it creeps slowly through the underwood, or flies up into a tree; in the former case continuing its call till again stationary, and in the latter, till it has concealed itself in the branches. If several are together, all begin to call at once, and run off in different directions, some mounting into the trees, others running along the ground. When first put up, they often alight in one of the nearest trees, but if again flushed, the second flight is generally to some distance, and almost always down hill. Their flight is rapid, the whir peculiar, and even when the bird is not seen, may be distinguished by the sound from that of any other. Where their haunts are often visited either by the sportsmen or the villagers, they are more wary, and if such visits are of regular occurrence and continued for any length of time, they become so in a very high degree—so much so, that it is impossible to conceive a forest bird more shy or cunning. They then as soon as aware of the presence of any one in the forest, after calling once or twice, or without doing so at all, fly up into the trees, which near their haunts are almost all evergreens of the densest foliage, and conceal themselves so artfully in the tangled leaves and branches that unless one has been seen to fly into a particular tree, and it has been well marked down, it is almost impossible to find them.

“In spring, as the snow begins to melt on the higher parts of the hill, they leave entirely their winter resorts, and gradually separate, and spread themselves through the more remote and distant woods up to the region of birch and white rhododendron, and almost to the extreme limits of forest. Early in April, they begin to pair, and the males are then more generally met with than at any other period; they seem to wander about a great deal, are almost always found alone, and often call at intervals all day long. When thus calling, the bird is generally perched on the thick branch of a tree, or the trunk of one which has fallen to the ground, or on a large stone. The call is similar to the one they utter when disturbed, but is much louder, and only one single note at a time, a loud energetic “*waa*,” not unlike the bleating of a lost goat, and can be heard for upwards of a mile. It is uttered at

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various intervals, sometimes every five or ten minutes for hours together, and sometimes not more than two or three times during the day, and most probably to invite the females to the spot. When the business of incubation is over, each brood with the parent birds keep collected together about one spot, and descend towards their winter resorts as the season advances; but the forests are so densely crowded with long weeds and grass, they are seldom seen till about November, when it has partially decayed, and admits of a view through the wood.

"It feeds chiefly on the leaves of trees and shrubs; of the former the box and oak are the principal ones, of the latter, *ringall* and a shrub something like privet. It also eats roots, flowers, grubs, and insects, acorns and seeds, and berries of various kinds, but in a small proportion compared with leaves. In confinement it will eat almost any kind of grain. Though the most solitary of our Pheasants, and in its native forests perhaps the shyest, it is the most easily reconciled to confinement; even when caught old they soon lose their timidity, eating readily out of the hand, and little difficulty is experienced in rearing them.

The Jewar roosts in trees, and in winter, perhaps for warmth, seems to prefer the low evergreens with closely interwoven leaves and branches to the latter and larger which overshadow them."

Other species of *Ceriornis* are *C. Temminchii*, Gray, from China, figured Hardwicke's Ill. Ind. Zool.; and *C. Caboti*, Gould, also from some part of China, figured by Gould, Birds of Asia, pt. X., pl. 1.

Near these Pheasants I would place that somewhat anomalous form, the Blood-pheasant, founded on a single known species. It has more the habit, perhaps, of a Jungle-fowl than of a Pheasant, but from its geographical relations with the Pheasants, only being found at high elevations on the Himalayas, I prefer considering it a peculiar form of Hill-pheasant, and it certainly has some affinities for the Pucras-pheasants. From its small size and numerous spurs, it may be considered as holding the same relationship to the Pheasants, as *Polyplectron* does to Pea-fowl, or as Spur-fowl do to Jungle-fowl. It may be considered a sort of

link between the Pheasants and Partridges, but I cannot agree with Gray in placing it among the Partridges.

Gen. *ITHAGINIS*, Wagler.

Char.—Bill short, stout; tail rather short, of fourteen feathers; tarsus of the male with several spurs; feathers of the neck somewhat elongated; head sub-crested. Of rather small size.

The pale grass-green color of the lower plumage of this remarkable bird, and the blood red stains are quite unique.

9. *Ithaginis cruentus*, HARDWICKE.

Phasianus, apud HARDWICKE, Lin. Trans. XIII. 237—BLYTH, Cat. 1455—P. Gardneri, Hardwicke (the female)—GOULD, Birds of Asia, pt. III. pl. 3—*Soomong-pho*, Lepch. *Semo*, Bhot.

THE GREEN BLOOD-PHEASANT.

Descr.—Male, with the forehead, lores, and cheeks, black; crown of the head buff; crest dull grey, with a streak of buff down the centre of each feather; back of the neck and upper surface generally dark grey, with a narrow stripe of buffy white bounded on either side with a stripe of black, down the centre of each feather, the stripes becoming larger and more conspicuous as they proceed backwards, and with a tinge of green on those occupying the lower part of the back and the centre of the greater wing-coverts; tail grey, fading into greyish white at the tip, the shafts white, and the basal three-fourths of the feathers broadly margined with blood red; beneath, the throat is blood red; the ear-coverts black, striated with buffy white, the lower part of the throat brownish black, with a stripe of greenish buff down each feather; sides of the neck buff; breast, sides of the abdomen, and flanks very pale green, with light shafts, and the feathers of the breast with a blotch of deep blood-red near the centre of either margin, giving the part the appearance of being stained with blood; middle of the abdomen, thighs and vent, dark brownish grey, striped with greenish white bounded by black; under tail-coverts deep blood-red, with a narrow line of pale yellow ending in a spatulate form at the tip, down the centre of each feather.

Bill brownish black at the tip, red at the base ; orbits bright red ; irides brown ; legs and feet coral red. Length 16 to 17 inches ; wing $8\frac{1}{2}$; tail $6\frac{1}{2}$; tarsus $2\frac{3}{4}$, with three, four or five short spurs.

The female has the forehead, cheeks and chin, bright rusty yellow ; the upper parts ferruginous brown, mottled very finely with blackish ; the first primaries plain dark brown ; the others and the tail dark brown, freckled like the back ; lower parts somewhat brighter ferruginous brown than above ; the under tail-coverts and vent mottled with brown.

This beautiful bird has only hitherto been found in the South-east Himalayas, in Nepal and Sikim, and apparently not common in the former country. It appears more abundant in Sikim, in the interior, for it is not found in British Sikim, and probably extends into the Bootan Himalayas. The following remarks are by Dr. Hooker, who had the opportunity of observing it in Sikim.

“ This, the boldest of the Alpine birds of its kind, frequents the mountain ranges of Eastern Nepal and Sikim, at an elevation varying from 10,000 to 14,000 feet, and is very abundant in many of the valleys among the forests of Pine, (*Abies Webbiana*) and Juniper. It seldom or ever crows, but emits a weak cackling noise. When put up, it takes a very short flight and then runs to shelter. During winter it appears to burrow under or in holes amongst the snow, for I have snared it in January in regions thickly covered with snow at an altitude of 12,000 feet. I have seen the young in May. The principal food of the bird consisting of the tops of the Pine and Juniper in spring, and the berries of the latter in autumn and winter, its flesh has always a very strong flavour, and is moreover uncommonly tough ; it was, however, the only bird I obtained at those great elevations in tolerable abundance for food, and that not very frequently. The Bhooteas say that it acquires an additional spur every year ; certain it is that they are more numerous than in any other bird, and that they are not alike on both legs. I could not discover the cause of this difference, neither could I learn if they were produced at different times. I believe that five on one leg, and four on the other, is the greatest number I have observed.”

Near the Horned-pheasants and perhaps linking them to the true Pheasants, I would place the Pucras or Koklas Pheasants, and Bonaparte includes them both in his section *Satyreæ* of his *Lophophorinæ*.

Gen. PUCRASIA, Gray.

Syn. *Eulophus*, Lesson—*Lophotetrax*, Cabanis.

Char.—Bill short; head adorned with a double crest, a sincipital tuft on each side, and a central drooping crest; tarsi with a moderately large spur; toes and claws lengthened and slender; tail moderately lengthened, graduated, of sixteen feathers. Plumage throughout somewhat lanceolate and cock-like.

This form may be said to be a sort of link between the Horned-pheasants and the true Pheasants. It has the crest of *Phasianus*, the hackled plumage of the Jungle-fowl, and in some points appears related to the last genus *Ithaginis*. The best known species has been described under *Tragopan* by Temminck; and one writer states his belief that it leads the way from Pheasants to the *Lophophori*. It is confined to the Himalayas and adjacent highlands. Gould in his *Birds of Asia* describes and figures three species.

10. *Pucrasia macrolopha*, LESSON.

Satyra, apud LESSON—BLYTH, Cat. 1472—GOULD, Cent. Him. Birds, pl. 69, 70—GOULD, *Birds of Asia*, pt. VI. pl. 4—*P. nipalensis*; GOULD, *l. c.* pl. 6?—HARDWICKE Ill. Ind. Zool. pl. 40—*P. pucrasia*, VIGORS—*Tragopan Duvaucelii*, TEMMINCK—*Plas*—*Pukras*—*Koklas* or *Kokla*, in various hill dialects.

THE PUKRAS PHEASANT.

Descr.—Male, with the head glossy dark green, the crown being ashy brown; medial crest, with the upper feathers, ashy brown; the lateral feathers dark green fully 4 inches; on each side of the neck a large white oblong spot; body above light ashy, each feather with a long pointed streak of black, and the wing-coverts with some blackish blotches; upper tail-coverts long, light ashy; tail brownish chesnut, black at the tip, and faintly edged with whitish; beneath, the breast and middle of the belly rich deep chesnut, ashy on the flanks; vent chesnut, the feathers white tipped.

Bill black; irides dark brown; legs and feet ashy. Length 24 inches; extent 30; wing 10; tail 12; tarsus $2\frac{1}{2}$.

The female has the upper plumage pale yellow-brown, variously variegated and banded with dark brown, chesnut, and pale yellowish; chin and throat yellowish-white; lower plumage yellow-chesnut, with dark brown markings, paler down the middle of the abdomen, and darker on the flanks.

Length 20 inches; extent 28.

This very handsome Pheasant has only been found in the N. W. Himalayas, from the west of Nepal to beyond Simla. It does not occur in Sikim, nor in Eastern Nepal. Gould has figured another supposed new species as *P. nipalensis*, stating that it is smaller and more beautifully colored, the mantle, sides of the neck, and feathers of the flank being conspicuously striated with black, chesnut and grey, whilst the same parts are sombre in the other species. The figures of the two resemble each other so very closely that I cannot help doubting their being really distinct. It would appear that *nipalensis* extends into the Bootan Himalayas, but it has certainly not hitherto been sent from the intervening Sikim hills.

For an account of the habits of the Pukras, I again quote from Mountaineer.

"This is another forest Pheasant common to the whole of the wooded regions, from an elevation of about 4,000 feet, to nearly the extreme limits of forest, but is most abundant in the lower and intermediate ranges. In the lower regions its favorite haunts are in wooded ravines, but it is found on nearly all hill sides which are covered with trees or bushes, from the summit of the ridges to about half way down. Further, in the interior, it is found scattered in all parts, from near the foot of the hills, to the top or as far as the forest reaches, seeming most partial to the deep sloping forest composed of Oak, Chesnut, and Morenda Pine, with Box, Yew, and other trees intermingled, and a thick underwood of Ringall.

"The Cocklass is of a rather retired and solitary disposition. It is generally found singly or in pairs; and except the brood of young birds which keep pretty well collected till near the end of winter, they seldom congregate much together. Where numerous,

several are often put up at no great distance from each other, as if they were members of one lot; but when more thinly scattered, it is seldom more than two old birds are found together; and at whatever season, when one is found, its mate may almost to a certainty be found somewhere near. This would lead one to imagine that many pairs do not separate after the business of incubation is over, but keep paired for several successive years. In forests where there is little grass or underwood, they get up as soon as aware of the approach of any one near, or run quickly along the ground to some distance; but where there is much cover, they lie very close, and will not get up till forced by dogs or beaters. When put up by dogs, they often fly up into a tree close by, which they rarely do when flushed by beaters or the sportsman himself, then flying a long way and generally alighting on the ground. Their flight is rapid in the extreme, and after a few whirs, they sometimes shoot down like lightning. They sometimes utter a few low chuckles before getting up, and rise sometimes with a low screeching chatter and sometimes silently. The males often crow at daybreak, and occasionally at all hours. In the remote forest of the interior, on the report of a gun, all which are within half a mile or so, will often crow after each report. They also often crow after a clap of thunder or any loud and sudden noise; this peculiarity seems to be confined to those in dark shady woods in the interior, as I never noticed it on the lower hills.

“The Cocklass feeds principally on leaves and buds; it also eats roots, grubs, acorns, seeds and berries, and moss and flowers. It will not readily eat grain; and is more difficult to rear in confinement than the Jewar or Moonall. It roosts in trees generally, but at times on low bushes or on the ground. The female lays seven eggs nearly resembling those of the Moonall in colour; they are hatched about the middle or end of May. She makes her nest under the shelter of an overhanging tuft of grass, or in a corner at the foot of a tree, and sometimes in the hollow of a decayed trunk.”

PUCRASIA CASTANEA, Gould, figured Birds of Asia, pt. VI., pl. 5, from the highlands adjoining the N. W. termination of the

Himalayas, may perhaps occur within our limits in Cashmere, and the Punjab Himalayas, but has not, that I am aware of, been actually recorded from any spot in our province.

The true Pheasants follow the Pukras group very closely.

Gen. PHASIANUS, Linnæus (as restricted.)

Char.—Tail elongated, cuneate, of eighteen feathers; cheeks naked, red; tarsi spurred in the males.

The true long-tailed Pheasants are found over all Central Asia, one species only occurring as far south as the Himalayan mountains, and none found in Burmah, nor in Malayana.

The type of the genus is the well known *Phasianus colchicus*, L., an inhabitant of Western Asia, now naturalized throughout great part of Europe.

The only Indian species differs somewhat in type of coloration from the more typical members, and has been separated as *Catreus* by Cabanis, but I shall not adopt the division.

11. *Phasianus Wallichii*, HARDWICKE.

Lophophorus, apud HARDWICKE—BLYTH, Cat. 1473—GOULD, Cent. H. Birds, pl. 68—P. Stacei, VIGORS—*Chir*, *Cheor*, *Banchil*, and *Herril*, in various parts of the Himalayas—*Kahir* in Nepal.

THE CHEER PHEASANT.

Descr.—Male, head dark ashy, crested, with a few long hair-like feathers; neck light ashy, gradually becoming slightly barred with dusky black; shoulders and wing-coverts yellowish ash, with curving bars of black; and, in some birds, small shining golden spots are mingled with the black curves on the shoulder; primaries dusky, partially barred with pale yellow; back and rump light reddish chesnut, barred with bluish-black; tail much graduated, the two long middle tail-feathers broadly barred with pale speckled yellow and brownish olive, blotched and speckled with black; the others barred with pale yellow black and dark chesnut; the throat and breast yellowish-ashy, with a few curving bars of black; belly dusky; thigh-coverts and vent yellowish chesnut, marked with dusky.

Bill pale horny; nude orbits bright red; irides yellowish hazel; legs and feet brown. Length up to 46 inches, of which the tail is 28, but rarely so long; wing 10; extent 32. Weight $3\frac{1}{2}$ lbs.

The female has the head, neck, and throat with large dusky oval spots; the back is more minutely mottled, and the barring on the wings more prominent; the tail, which is much shorter, has the brown mottlings bolder and more distinct; the chin is plain; and the belly and vent are plain yellowish ashy. Length 32 inches; tail 16.

Young males are said to assume their own plumage at once.

This fine, though plain colored Pheasant is only found in the N. W. Himalayas, extending into Nepal, where however not so common as further West. "It is," says Mountaineer, "an inhabitant of the lower and intermediate ranges, seldom found at very high elevations, and never approaching the limits of forest. Though far from being rare, fewer perhaps are met with than of any other kind, unless it is particularly sought for, always excepting the Jewar. The reason of this may be that the general character of the ground where they resort is not so inviting in appearance to the sportsman as other places; besides, they are everywhere confined to particular localities, and are not like the rest scattered indiscriminately over almost every part of the regions they inhabit. Their haunts are on grassy hills, with a scattered forest of oak and small patches of underwood, hills covered with the common pine, near the sites of deserted villages, old cowsheds, and the long grass amongst precipices, and broken ground. They are seldom found on hills entirely destitute of trees or jungle, or in the opposite extreme of deep shady forest; in the lower ranges they keep near the tops of the hills or about the middle, and are seldom found in the vallies or deep ravines. Further in the interior, they are generally low down, often in the immediate vicinity of the villages; except in the breeding season, when each pair seek a spot to perform the business of incubation, they congregate in flocks of from five or six to ten or fifteen, and seldom more than two or three lots inhabit the same hill. They wander about a good deal on the particular hill they are located, but not beyond certain boundaries, remaining about one spot for several days or weeks, and then shifting to

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another, but never entirely abandon the place, and year after year may to a certainty be found in some quarter of it. During the day, unless dark and cloudy, they keep concealed in the grass and bushes, coming out morning and evening to feed; when come upon suddenly while out, they run off quickly in different directions, and conceal themselves in the nearest cover, and seldom more than one or two get on the wing. They run very fast, and if the ground is open and no cover near, many will run two or three hundred yards in preference to getting up. After concealing themselves, they lie very close and are flushed within a few yards. There is perhaps no bird of its size which is so difficult to find, after the flock have been disturbed, and they have concealed themselves; when the grass is very long, even if marked down, without a good dog it is often impossible, and with the assistance of the best dogs not one-half will be found a second time. A person may walk within a yard of one and it will not move. I have knocked them over with a stick, and even taken them with the hand. In autumn the long rank grass so prevalent about many of the places they resort to, enables them to hide almost anywhere; but this is burnt by the villagers at the end of winter, and they then seek refuge in low jungle and brushwood, and with a dog are not so difficult to find.

“Both males and females often crow at daybreak and dusk, and in cloudy weather sometimes during the day. The crow is loud and singular, and when there is nothing to interrupt the sound, may be heard for at least a mile. It is something like the words, *chir a pir, chir a pir, chir chir, chirwa, chirwa*, but a good deal varied; it is often begun before complete daylight, and in spring when the birds are numerous, it invariably ushers in the day. In this respect it may rival the domestic Cock. When pairing and scattered about, the crow is often kept up for near half an hour, first from one quarter, then another, and now and then all seem to join in as a chorus. At other times it seldom lasts more than five or ten minutes.

“The Cheer-pheasant feeds chiefly on roots, for which it digs holes in the ground; grubs, insects, seeds and berries, and, if near cultivated fields, several kinds of grain form a portion; it does

not eat grass or leaves like all the rest of our Pheasants. It is easy to rear in confinement, and might, without difficulty, be naturalized in England, if it would stand the long frosts and snows of severe winters, which I imagine is rather doubtful. The female makes her nest in the grass or amongst low bushes, and lays from nine to fourteen eggs, of a dull white, and rather small for so large a bird. They are hatched about the end of May or beginning of June. Both male and female keep with the young brood, and seem very solicitous for their safety.

"This bird flies rather heavily and seldom very far. Like most others, it generally utters a few loud screeches on getting up, and spreads out the beautifully barred feathers of its long tail, both when flying and running. It does not perch much on trees, but will occasionally fly up into one close by, when put up by dogs. It roosts on the ground generally, and when congregated together, the whole flock huddle up in one spot. They will however at times roost in trees or bushes."

Other true Pheasants besides *P. colchicus* are *P. torquatus*, or the ring-necked Pheasant of China, which differs from the common one by having a white ring round the neck, and the back being green. It is figured by Gould, Birds of Asia, pt. VIII., pl. 1; and another species, *P. mongolicus*, has been lately described by Gould. *P. versicolor*, Vieillot, (*Diardi*, Temm.) figured by Gould, Birds of Asia, pt. IX., pl. 1, from Japan, has frequently interbred with the common and ringed Pheasants in England. The gorgeous *P. Reevesii*, Gray (*veneratus*, Temm.) from China, and badly figured in Hardwicke's Ill. Ind. Zool., is placed under *Syrmaticus*, of Wagler. *P. Swemmeringii*, Temm., from Japan, a fine species with coppery red plumage, is placed by Reichenbach as *Graphophasianus*.

The Golden Pheasants form a pretty distinct group, *Thaumalea*, Wagler, (*Chrysolophus*, Gray). They have the head crested, and a sort of ruff or tippet round the back of the neck, and a very long tail. There are two species, one the well-known Golden Pheasant, *Thaumalea picta*, from China, said to extend west in Central Asia, as far as Orenbourg; and deemed by Cuvier to be

the type of the *Phoenix* of the ancients. The other species is a most lovely bird, *Thaumalea Amherstiae*, Leadbeater, probably an inhabitant of the northern provinces of China, or Mantchouria. It is beautifully figured in Gray's Genera of Birds.

The Silver Pheasant, *Gennæus nycthemerus*, figured by Gould, Birds of Asia, pt. XI., pl. 1, is the type of another form; and this is intimately connected with a group which leads from the Pheasants to the Firebacks and Jungle-fowl, and may be placed with either. It is that of the Kalij Pheasants of the Himalayas, and, as it partakes both of the character of the Pheasants and Jungle-fowl, so, in its geographical distribution, it ranges from the head quarters of the Pheasants to the Burmese province, where Jungle-fowl take the place of the true Pheasants.

The Silver Pheasant of Burmah, *Phasianus lineatus*, Latham, figured in Belanger's Voyage, Birds, pl. 8, might be classed either with the true Silver Pheasant, or the Kalij group, but from geographic reasons I prefer placing it with the latter. It has been separated as *Grammatoptilus*, Reichenbach. It occurs throughout the hilly regions of Burmah.

Gen. GALLOPHASIS, Hodgson.

Syn. *Euplocomus*, Temminck (in part).

Char.—Head more or less crested; orbits naked, red; plumage glossy black and white; the feathers of the neck and breast hackled; tail moderately long, of sixteen feathers, divaricated, raised in the centre, as in Jungle-fowl, and held demi-erect, the feathers drooping and curving outwards.

This group is composed of at least three species, two being found in the Himalayas, and one in Assam, Chittagong and Arrakan. They are birds about the size of a small fowl, and live at various elevations, from 3,000 feet to 7,000 feet and upwards. Gray places them among the Jungle-fowl, but from their Himalayan distribution, and their not extending far South, I prefer placing them with the Pheasants, but leading directly to the Firebacks and Jungle-fowl.

12. *Gallophasis albocristatus*, VIGORS.

Phasianus, apud VIGORS—GOULD, Cent. Him. Birds, pl. 66, 67
—*P. Hamiltonii*, GRAY—HARDWICKE, Ill. Ind. Zool. 1 pl.
41—BLYTH, Cat. 1470—*Kalij*—*Murgh-kalij*, and *Kukera*, H. at
Simla and the N. W. Himalayas.

THE WHITE-CRESTED KALIJ-PHEASANT.

Descr.—Male, head, neck, wings and tail shining bluish black; a long crest of slender decomposed feathers, white; lower back and rump dull white, slightly barred with black, the feathers being black at the base, broadly tipped with white; throat and breast greyish white, the feathers lanceolate; belly and vent dark grey.

Bill dark horny; naked orbits bright red; irides brown; legs and feet dark horny. Length 26 inches; extent 32; wing 10; tail 12 to 15. Weight about 3 lbs.

The female is less than the male, of a light brown colour throughout, each feather being tipped with pale whity brown; the chin whitish; lateral tail-feathers dark. The young male is said to get his proper plumage the first year.

The white-crested Kalij is found in the North-west Himalayas, as far as Nepal, where it meets with the next species, and hybrids between the two are not uncommon; and these have caused some confusion of species, *P. leucomelanos*, of Latham being considered as one of these hybrids, and *P. hamiltonii* another.

“The well known Kalleege,” says Mountaineer, “is most abundant in the lower regions; it is common in the Dhoon at the foot of the hills, in all the lower vallies, and every where to an elevation of about 8,000 feet; from this it becomes more rare, though a few are found still higher. It appears to be more unsuspicious of man than the rest of our Pheasants; it comes much nearer his habitations, and from being so often found near the villages and road-sides, is considered by all as the most common, though in their respective regions the Moonall is more numerous. In the lower regions, it is found in every description of forest from the foot to the summit of the hills, but it is most partial to low coppice and jungle, and wooded ravines or hollows. In the interior it frequents

the scattered jungle at the borders of the dense forest, thickets near old deserted patches of cultivation, old cowsheds and the like, coppices near the villages and roads, and in fact forest and jungle of every kind, except the distant and remoter woods in which it is seldom found. The presence of man, or some trace that he has once been a dweller in the spot, seems as it were, necessary to its existence.

“The Kalleege is not very gregarious; three or four are often found together, and ten or a dozen may sometimes be put out of one small coppice, but they seem in a great measure independent of each other, and much like our English Pheasants. When disturbed, if feeding or on the move, they generally run, and do not often get up unless surprised suddenly and closely, or forced by dogs, and lie rather close in thick cover. They are never very shy, and where not unceasingly annoyed by sportsmen or shikarees, are as tame as any sportsman could wish. In walking up a ravine or hill side, if put up by dogs, a little distance above, they will often fly into the trees close above his head, and two or three allow themselves to be quietly knocked over in succession. When flushed from any place where they have sheltered, whether on the ground or aloft, they fly off to some distant cover, and alight on the ground in preference to the trees. Their call is a loud whistling chuckle or chirrup; it may occasionally be heard from the midst of some thicket or coppice at any hour of the day, but is not of very frequent occurrence. It is generally uttered when the bird rises, and if it flies into a tree near, often continued some time. When flushed by a cat or a small animal, this chuckling is always loud and earnest.

“The Kalleege is very pugnacious, and the males have frequent battles. On one occasion I had shot a male which lay fluttering on the ground in its death struggles, when another rushed out of the jungle and attacked it with the greatest fury, though I was standing reloading the gun close by. The male often makes a singular drumming noise with its wings, not unlike the sound produced by shaking in the air a stiff piece of cloth. It is heard only in the pairing season, but whether to attract the attention of the females or in defiance of his fellows, I cannot say, as I have

never seen the bird in the act, though often led to the spot where they were by the sound.

It feeds on roots, grubs, insects, seeds, and berries, and the leaves and shoots of shrubs. It is rather difficult to rear in confinement when caught old; and the few chicks I have tried, have also soon died, though possibly from want of proper care and attention. It is singular that of the Hill-pheasants the one most common near the habitations of man, should so ill brook the loss of liberty, while the Jewar, the most retired and solitary of all, is the most easily reconciled to it. The Kalleege lays from nine to fourteen eggs, much similar in size and colour to those of the domestic hen. They are hatched about the end of May."

13. *Gallophasis melanotus*, BLYTH.

Euplocomus, apud BLYTH, Cat. 1469—*Karrick-pho*, Lepch.—*Kirrik*, Bhot.—*Kali*j of Europeans at Darjeeling.

THE SIKIM KALIJ-PHEASANT.

Descr.—Male, the whole upper plumage, including the crest, glossy black; beneath white; the feathers of the throat and breast long and lanceolate; abdomen, vent, and under tail-coverts dull brownish black.

Bill pale horny yellow; orbital skin fine red; irides brown; legs horny; weight about 3 lbs. Length 27 inches; wing $9\frac{3}{4}$; tail 13; tarsus 3.

The female has the plumage brown, pale and whitish about the head and throat, the feathers of the back tipped with greyish, and those of the wing-coverts and beneath, broadly edged with white, all the feathers faintly white-shafted.

The Sikim black Pheasant differs conspicuously from that of Simla by the crest being black, and in having no white on the rump. In this last point, it differs also from another species, *Gallophasis Horsfieldii*. It extends into Nepal for some distance till it meets the previous species. About Darjeeling it is the only Pheasant at all common, and is not unfrequently put up on the

road side by dogs, when it at once takes refuge in trees. It is found from 3,000 to nearly 8,000 feet; walks and runs with its tail semi-erect, and frequents both forests and bushy and grassy ground, coming to the fields and more open spaces to feed in the morning and evening. Its eggs are occasionally found by the coolies when weeding the Tea-gardens in June and July, and are usually, I am told, five to eight in number. Its call sounds something like *koorchi-koorchi*, at other times *koorook-koorook*.

Gallophasis Horsfieldii, figured by Gray in his Genera of Birds, and also by Wolf, is found in all the hilly regions of Assam, Sylhet, Tipperah, and Chittagong, where called *Muthura*. It differs from the Darjeeling Kalij by having the back and rump white, &c. I found it in the Khasia Hills, at between 3,000 and 4,000 feet of elevation. It grades into the Burmese *G. lineatus*, specimens from Arrakan, being apparently hybrids between the two species.

Sub-fam. GALLINÆ.

Head sometimes furnished with fleshy crest and wattles, or crested, or sub-crested; tail usually of fourteen feathers, compressed, and more or less divaricate, held demi-erect; the upper tail-coverts in the males are (typically) elongated and pendent.

This division comprises, according to our views, the Jungle-fowls of India and Malayana; the Fire-backs, and the black Pheasants, peculiar to the Malayan region; and a small group from India and Ceylon, the so called Spur-fowl of Indian sportsmen. Although one species extends to the lower ranges of the Himalayas, it cannot be called a Himalayan form, and thus this series of game birds differ remarkably in their geographic distributions from the last, only one form of which (and that one osculant with the present division) extends south of the Himalayan region. A very beautiful bird, *Diardigallus prelatius*, Bonaparte, from Siam, may be considered the link from the Kalij Pheasants to the Jungle-fowl, or rather to the Fire-backs. It has a peacock-like crest, a rather long glossy black tail, the upper plumage and breast silvery grey, and the rump pale golden yellow. It is figured by Gould in his birds of Asia, pt. XII., pl. 4. Next this should come the

Fire-backed Pheasants, *Macartneya*, with two species, *Phasianus ignitus*, and *P. Vieilloti*; large birds with black plumage, the back fiery red, and the middle tail feathers white. The head is slightly crested, and the orbits are blue. Next *Alectrophasis*, Gray, founded on the *Lophophorus Cuvierii* of Temminck, a very beautiful bird; and *Acomus*, founded on the *Phasianus erythrophthalmos*, similar but smaller, and in which genus the female is occasionally spurred. This and the last have rufous tails. Next these the Jungle-fowl.

Gen. GALLUS, Linnæus.

Char.—Head furnished with a crest of skin; the face nude, and also a loose lappet or wattle; tarsus of the male strongly spurred; the spur long and slightly curved; tail, of fourteen feathers, compressed, divaricated, with the median feathers lengthened, curved and drooping, held semi-erect, the backs of the feathers facing each other; the upper tail-coverts lengthened and curved; feathers of the neck hackled, lanceolate.

This genus comprises the so called Jungle-fowl, the origin of all our varieties of Fowl, and its general characters are familiar to all. Several species are known occurring from India as far as Timor at all events. India possesses two, and Ceylon another species.

14. *Gallus ferrugineus*, GMELIN.

Tetrao, apud GMELIN—figured by LATHAM as the Hackled Partridge—BLYTH, Cat. 1462—*G. bankiva*, TEMMINCK (in part)—HARDWICKE Ill. J. Z. 1 pl. 43 f. 3 the hen,—JERDON, Cat. 267—*Ban murgh*, or *Jangli-murgh*, H.—*Bankokra* of the Sontals and in Central India—*Gera gogor* of the Gonds (the male), *Kuru* (the hen)—*Natsu-pia*, Bhot.—*Pazok-tshi*, Lepch.

THE RED JUNGLE-FOWL.

Descr.—Male, colors as in the typical Barn-door fowl, viz., rich golden hackles on the head, neck, throat and breast, paler on the sides of the neck and posteriorly; ear-coverts white; back purplish brown in the middle, rich orange brown on the sides; upper tail-coverts lengthened, also bright orange; wings with the lesser and greater-coverts black, glossed with green; median-coverts rich

dull maronne; primaries dusky with pale edges; secondaries chesnut externally, dusky within; tertiaries glossy black; tail with the central feathers rich glossy green-black, the gloss diminishing on the lateral feathers; beneath, from the breast, unglossed black; thigh-coverts the same.

Bill slaty brown; irides orange red; face, comb, and wattles red; legs slaty black. Length about 26 inches; wing 9; tail 15; tarsus $2\frac{1}{2}$. Weight about $2\frac{1}{2}$ lbs.

The Jungle-hen has the general colour yellowish brown, minutely mottled with dark brown; and some of the feathers, especially of the upper back and wing coverts having conspicuously pale shafts; the head dusky above, passing into short hackles of dark brown, edged with bright yellow on the neck and sides of the breast; quills and tail dark brown; the central rectrices edged with mottled brown; ear-coverts yellowish; a line down the throat deep bright red-brown ending in a point below, and passing up in a line behind the ears to join a small supercilium of the same hue; breast pale rufous brown, with central pale streaks, lighter on the middle of the belly and becoming dull brown on the flanks, vent, thigh-coverts, and under tail-coverts. She wants the comb and wattles, and has only a small nude red space. Length 16 or 17 inches; tail 7.

The well known Jungle-fowl is found from the Himalayas southwards, on the west of India, as far at all events, as the range of Vindhian hills; and as I have been informed by Mr. W. Blanford since the above remarks were penned, also south of the Nerbudda on the Raj-peepla hills. Col. Sykes' variety found in the Western Ghâts with much red in its plumage must be this species, but it is to be wished he had noted the particular locality. On the east, it occurs through Central India and the Northern Circars to near the north Bank of the Godavery. I have heard of its having been killed even south of this, at Cumnum, but I cannot speak positively on this head. I have not seen it myself further south than the banks of the Indrawutty, not far from its junction with the Godavery, and there both this species and the next were heard crowing a few yards from each other. I shot one bird, an undoubted hybrid between the two races.

In Central India, this Jungle-fowl is rare, especially towards the Western portion, at Jubbulpore, Saugor, Mhow, &c., but it is very abundant to the East, and particularly so in the Northern Circars. It is not uncommon, too, in the Rajmahal hills, extending to the south bank of the Ganges. Towards the North-west it occurs in the range of hills South of Cashmere, and to the West of Jummoo, but is rare there, though common in the lower ranges near Simla, and thence along the Himalayas to Assam, Sylhet, Chittagong and Burmah. Malayan specimens are decidedly darker in tint, and have the ear-coverts rufous, and perhaps may be considered to be a distinct race or species, which, in that case, would bear Temminck's name, *Bankiva*. This race appears to extend over many of the Malayan islands, as far as Timor, at all events; and Mr. Blyth drew my attention to the statement of Jungle-fowl occurring in the Bonin islands. Certain pale-colored birds from the lower Himalayan ranges were noticed in the *Ann. and Mag. Nat. Hist.*, Vol. XX., p. 389.

The Jungle-fowl is very partial to Bamboo jungle, but is found as well in lofty forests and in dense thickets. When cultivated land is near their haunts, they may, during the harvest season and after the grain is cut, be seen morning and evening in the fields, often in straggling parties of ten to twenty. Their crow which they give utterance to morning and evening, all the year round, but especially at the pairing season, is quite like that of a Bantam cock, but shorter, and never prolonged as in our domestic cocks. The hen breeds from January to July, according to the locality, laying eight to twelve eggs, of a creamy white color, often under a bamboo clump, or in some dense thicket, occasionally scraping a few leaves or dried grass together to form a nest. Sooner or later after the breeding season is over, the neck hackles of the male sometimes fall off, and are replaced by short blackish grey feathers.

Where detached clumps of Jungle or small hills occur in a jungly district where these Fowl abound, very pretty shooting can be had by driving them by means of dogs and beaters; and in travelling through a forest country, many will always be found near the roads, to which they resort to pick up grain from the droppings

of cattle, &c. ; dogs will often put them up when they at once fly on to the nearest trees. Young birds, if kept for a few days, are very excellent eating, having a considerable game flavour.

15. *Gallus Sonneratii*, TEMMINCK.

Pl. Col. 232 and 233—Phas. gallus, apud SONNERAT—Phindicus, LEACH—BLYTH, Cat. 1464—SYKES, Cat. 148—JERDON, Cat. 266—*Jangli murgh*, H.—*Adavi kodi*, Tel.—*Katu koli*, Tam.

THE GREY JUNGLE-FOWL.

Descr.—Whole head and neck, with the hackles, blackish grey, with yellow spots, each feather being blackish, with the shaft white and two spots, the terminal one of somewhat square form, as if a drop of yellow sealing wax ; the other whitish, passing on the wing-coverts into oblong spots of glistening wood-brown ; ear-coverts pale rufous ; the rest of the plumage above and below, blackish grey, the feathers white shafted, and those on the flanks broadly centered and tipped with wood-brown ; outermost primaries dusky, with the shaft and narrow edge pale ; the others black, faintly glossed ; upper tail-coverts glossy purple ; the central tail feathers glossy green, the gloss diminishing on the lateral feathers ; vent dirty brownish ; under tail-coverts glossy black, with white shafts.

Bill yellowish horny ; comb, face, and wattles red ; irides orange brown ; legs and feet horny yellowish. Length 24 inches and upwards in fine specimens ; wing $9\frac{1}{2}$ to 10 ; tail 15 to 16 ; tarsus $3\frac{1}{4}$; weight $2\frac{1}{2}$ lbs.

The Hen is mottled brown above, with pale shafts on the wing-coverts ; beneath blackish brown, the feathers broadly centered with pure white, passing into plain dull brown on the flanks, thigh-coverts, vent, and under tail-coverts ; head and neck rufous brown, paler on the chin and throat and somewhat yellowish ; primaries dark brown, the secondaries mottled brown ; tail blackish brown, edged with mottled brown. Length about 17 inches.

This handsome Jungle-fowl is found in Southern India only, extending on the east coast to a little north of the Godavery, in

Central India to the Pachmarri or Mahadeo hills, north of Nagpore, and on the west coast to the Rajpeepla hills, where it meets the Red Jungle-fowl. Its occurrence on the Pachmarri hills is most probably its eastern extension from the Western Ghâts and the Rajpeepla hills, and it will probably be found all along the Sathpoora range. I do not know of its occurrence east of the Mahadeo hills, till the neighbourhood of the lower part of the Godavery is reached. It is very abundant on the Malabar Coast, especially in the more elevated districts, as in the Wynaad, and it ascends to the summit of the Neilgherries; it is also common in suitable localities on the Eastern Ghâts, and in the various isolated ranges of hills in the south of India. It is not rare in the Naggery hills near Madras, and is constantly brought for sale to the Madras market.

Like the last, it is particularly partial to bamboo jungles. Early in the morning, throughout the Malabar Coast, the Wynaad, &c., Jungle-fowl may always be found feeding on the roads, and, with dogs, you are certain of getting several shots on the road side, the birds perching at once on being put up by dogs. In some districts where they can be beaten out of the woods, and especially on the Neilgherries, very pretty shooting is to be had at this Jungle-cock, the sharply defined woods, or 'sholas' as they are called, being well adapted to being beaten for game. The Hen lays from February to May, generally having from seven to ten eggs, of a pinky cream colour, under a bamboo clump. The call of the Cock is very peculiar, being a broken and imperfect kind of crow, quite unlike that of the Red Jungle-cock, and impossible to describe. When taken from the jungles they are more wild and not so easily domesticated as the Red Jungle-fowl; but they have bred in confinement with Hens of the common breed. I have already noticed the occurrence, in a wild state, of hybrids between this and the Red Jungle-fowl.

Ceylon possesses a separate species of Jungle-fowl, *Gallus Stanleyi*, Gray, (*G. Lafayetti*, Lesson; *lineatus*, Blyth), something like *Bankiva*, but red beneath; and Java has another very distinct species, *Gallus furcatus*, Temminck. Several other races are noted, but some of them are doubtful species, *G. æneus*, Temm.,

being considered a hybrid between *furcatus* and *bankiva*. Gray has lately figured a fine Cock from Batavia, *G. Temminckii*.

Lastly we come to what may be considered a dwarfed or degraded race of Jungle-fowl, peculiar to the Continent of India and Ceylon, the so called Spur-fowl of sportsmen in the South, the double-spurred Partridge of some. These birds, which are only of the size of Partridges, have no comb nor wattles, but they have nude orbits, quite the port of Jungle-fowl, and the sexes differ nearly as much, in which point they do not agree with the Partridge group. They moreover, frequent woods and dense cover, never coming into the open.

Gen. GALLOPERDIX, Blyth.

Char.—Bill somewhat lengthened; orbits nude; tail moderately long, broad, of 14 feathers, held erect and folded as in fowls; tarsus of the male with two or more spurs; females also with one or more spurs. Of small size. Sexes differ much in colour.

Only three species are known at present.

16. *Galloperdix spadiceus*, GMELIN.

Tetrao, apud GMELIN—BLYTH, Cat. 1458—HARDWICKE, Ill. Ind. Zool. 1 pl. 42 f. 2—GOULD, Birds of Asia, pt. VI., pl. 3—SYKES, Cat. 160—JERDON, Cat. 274—Polyplectron northiæ, GRAY, HARDWICKE, Ill. I. Z. I. pl. 43, f. 1 (the female)—*Chota jangli murgh*, H.—*Yerra kodi*, and *Jitta kodi*, Tel.—*Saravi koli*, Tam. *Kokatiri*, Mahr.

THE RED SPUR-FOWL.

Descr.—Male, head and nape dusky olive-brown; the forehead and round the eye pale whity brown, somewhat buff in some individuals; chin, throat, and sides of neck pale brown; the rest of the body both above and below, rich brown-chesnut or bay; each feather pale edged; primaries brown; the secondaries and tertiaries more or less minutely mottled; tail with the central feathers chesnut, the others dark-brown, more or less mottled, this disappearing with age; lower abdomen, vent, and under tail-coverts, olivaceous.

Bill dusky-horny; orbits red; irides orange brown; legs and feet vermillion red. Length 14 to 14½ inches; wing 6½; tail 5; tarsus 2; weight 12 to 13 oz.

The female has the crown dusky blackish, the neck olive brown, and the rest of the upper plumage pale rufous-brown, each feather with two or three blackish bands, and minutely speckled, and the tip pale; the rump and upper tail-coverts are minutely freckled; the tail mostly blackish, with mottled rufous bars, tending to become obsolete; primaries, their coverts, and the winglet, spotless dusky brown; throat albescent; neck olive brown, the feathers becoming rufous in the centre, and tipped with black; breast and flanks bright ferruginous, with narrow black tips; belly dusky brown; under tail-coverts freckled rufous brown.

Length 13 inches; tail 4½.

The male bird has usually two spurs on each tarsus, sometimes three on one, and occasionally two on one leg and one on another, often long and sharp. The hen bird has usually one on each leg, sometimes absent on one leg; and occasionally two on one leg and one on the other.

The Red Spur-fowl is found throughout the South and many parts of Central India, extending into the Rajmahal and Kurrukpore hill ranges south of the Ganges, but rare there. I have seen it most abundant in the Malabar jungles, from near the level of the Sea to the Neilgherries, up to nearly 7,000 feet of elevation, but more common lower down; in the Northern Circars; in the eastern parts of Central India; in the high land between Nagpore and the Nerbudda, and also in the Vindhian range. As both male and female are figured in Hardwicke's Illustrations, it may occur in some parts of the North-western Provinces, but I have not seen it recorded higher than Bundelkund. In the less wooded ranges of the Eastern Ghâts, it is rare, being there replaced by the next bird. This species is stated in some works to inhabit Madagascar as well as India, but this is exceedingly doubtful. If it really has been received as from Madagascar, I would accept Mr. Blyth's conjecture that it and *Francolinus sinensis* (also stated to have been received from

that Island) have been introduced into the Mauritius, and sent thence along with various Madagascar birds. It is more probable, however, that some other species has been mistaken for it, probably *Tetrao madagascariensis*, which, indeed, Gray places next *Galloperdix* in his genus *Plectrophorus*; but which most probably belongs to the African *Francolins* rather than to the *Gallinæ*.

The Red Spur-fowl chiefly affects forests, or dense thickets of bamboos, and is difficult to obtain without dogs, as it runs before the sportsmen or beaters; and, in driving some of the large forests for Deer, these Spur-fowl as well as Jungle-fowl and Pea-fowl often run past the concealed gunner. On the Neilgherries good shots can be had in beating the woods there, and two or three Spur-fowl generally form part of a miscellaneous bag on those hills. Dogs cause it to perch on trees at once, and it always roosts on trees at night. It feeds on various kinds of grain, and very much on insects, especially on various kind of bugs, larvæ of small blattæ, &c., it comes less to the open to feed than Jungle-fowl, and I have never flushed it in fields. It runs with its tail raised, and is always considered a sort of Jungle-fowl by the natives. The call is a sort of crowing cry which the Mahrattas have attempted to imitate in their name, and the call note of the hen is quite fowl-like. It is stated to breed in dense thickets in March and April. The flesh, though rather dry, is of high flavour, and if, as on the Neilgherries, it can be kept a few days, is really excellent.

17. *Galloperdix lunulosus*, VALENC.

Perdix, apud VALENCIENNES—BLYTH, Cat. 1457—*Francolinus nivosus*, DELESSERT Voy. aux. Indes pl. 10—*P. Hardwickii*, GRAY, HARDWICKE, Ill. Ind. Zool., 1, pl. 52—JERDON, Ill. Ind. Orn. pl. 42 (the female.)—*Jitta kodi*, Tel.

THE PAINTED SPUR-FOWL.

Descr.—Male, head, face, and neck variegated black and white, the feathers being black with white streaks and triangular spots, the head mostly black; the upper plumage and wings rich chestnut, with white spots on the back, sides of neck, shoulders, and wing-

coverts; primaries earthy brown; tail dark sepia brown, glossed with green in old birds; beneath, the throat and neck are variegated black and white, changing on the breast to ochreous buff, with small triangular black marks, which disappear on the abdomen; the flanks, thigh-coverts, and under tail-coverts dull chesnut.

Bill blackish; orbits red; irides red brown; legs horny brown. Length 13 inches; wing 6; tail 5; tarsus $1\frac{1}{2}$.

The female has the top of the head dusky, with the forehead, over the eye, and the nape tinged with chesnut; a pale ruff and moustachial line; the rest of the plumage dull olive brown, changing to ochreous-olive on the breast and abdomen.

Length $12\frac{1}{2}$ inches.

The male has generally two spurs on each leg, occasionally three, and the hen bird has almost always one, frequently two. Young males have the general plumage of females, with the tertiaries and tail chesnut brown, with black bands; and young females have blackish lunulations on part of their plumage.

The Painted Spur-fowl is not found on the Malabar Coast nor on the Neilgherries, but is common in several of the isolated hill ranges of Southern India, and all along the Eastern Ghâts which are more scantily clad with forest than those on the Malabar Coast; also in rocky hills about Hyderabad in the Deccan, and thence sparingly through Central India, and the Saugor and Nerbudda territories to the Monghyr and Mirzapore hills, and perhaps still further West, the male bird being figured in Hardwicke's Illustrations as from Cawnpore. A writer in the *Bengal Sporting Review* states that he has seen them in the Cuttack jungles; but in Goomsoor, a little further south, I saw only the Red Spur-fowl. The same writer states them to be frequently seen on the hilly parts of the Grand Trunk Road. Either this or the last species is called the 'Nerbudda Chukor' in some pages of the same periodical.

This handsome Spur-fowl is especially partial to rocky jungles and tangled coverts, and is a very difficult bird to flush, taking a short and rapid flight, and diving down into some impenetrable thicket. I have often seen it running rapidly across rocks when the jungles were being beaten for large game. From the difficulty

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of procuring this bird, it is not well known to sportsmen in general, even in districts where it is not rare; and its qualities for the table are inferior to those of the last species, having less flavour and being more dry. Numbers are snared in the hills not far from Madras, and they are generally procurable in the Madras market. I have kept them in confinement for long. They thrive pretty well, but the males are very pugnacious. The males have a fine cackling sort of call, very fowl-like. This Spur-fowl has been introduced into the Zoological Gardens of London, and appears to be thriving well. A figure of it appeared in Wolf's Zoological sketches of Animals and Birds living in those gardens.

The only other known species of Spur-fowl, *Galloperdix zeylonensis*, is somewhat allied to the last species, but differs conspicuously by the lower parts being mottled black and white, somewhat as in the Painted Partridge. It is figured by Gould in Birds of Asia, pt. VI., pl. 2.

Blyth considers *Ptilopachus*, an African genus, to approximate *Galloperdix*, but on geographic considerations I prefer keeping it among the Francolins and Partridges as Gray has done. The Turkeys are sometimes placed as a division of the *Phasianidæ*, but I think on grounds both of structure, habit, and geographic distribution, that they ought to be kept distinct. Bonaparte, indeed, places them, and the somewhat less isolated Guinea fowls of Africa, as families in one Cohort, *Craces*, with the *Cracidæ*; and Gray places both Turkeys and Guinea-fowl in his sub-fam. *Meleagrinoæ* of the *Phasianidæ*. Though I can hardly agree with Bonaparte in associating them with the Curassows from which they differ in so many structural details, yet I agree with him that geographic distribution must be considered in allotting a place in the natural system to any group.

The *Meleagridæ* or Turkeys, are birds of large size, with the head and neck naked; a fleshy caruncle hangs from the cere, partially erectile, and the throat is furnished with a pendulous carunculated wattle capable of expansion and turgescence, when the bird is excited either by anger or desire; the tail has eighteen broad feathers, which the male raises erect and spreads, puffing out

his plumage and gobbling. The tarsus is armed with a blunt spur, and the bill is rather short and stout. Three species are now known, *Meleagris sylvestris*, of N. America; *M. ocellata*, of Honduras; and *M. mexicana*, Gould, undoubtedly the origin of the domestic Turkey. They frequent woods, associating in large flocks.

Fam. TETRAONIDÆ—Grouse and Partridges.

Syn. Cohort *Perdices*, Bonap.

Bill generally short, stout, and thick; nostrils, in many, plumed at the base; wings rounded in most, pointed in a few, longer than in the *Phasianidæ*; tail short or moderate, even or very slightly rounded, forked and lengthened in a few; tarsus rather short and stout; face feathered entirely, or with a small patch of nude skin over or round the eye. Plumage of the sexes in general differing but very slightly, sometimes not at all.

The Grouse, Partridges, and Quails, which compose this family, differ markedly in several points from the Pheasants and Jungle-fowls, albeit some of them have more or less resemblance to the birds of that group. The Black-cock with his forked tail and black plumage recalls the coloring of *Gallophasis* and *Acomus*; and the Capercailzie has the perching habits of the Pheasants. But there is something in the physiognomy of most of this family which points them out, even to the common observer, as a distinct group. Their form is heavy, stout, and massive; the neck shorter; the bill stout and short; the tail is shorter, and seldom raised; there is very slight, often no difference between the sexes; and the plumage of most has that peculiar character distinguished as game plumage, rather a vague term certainly, and more evident to the eye than describable in words.

They have, moreover, a totally different geographical distribution, being found over all the world, whilst the *Phasianidæ* are confined nearly to the South-east of Asia. Bonaparte places them as his Cohort *Perdices*; but in relation with the *Pteroclidæ* and *Tinamidæ*, to neither of which they are very closely affined. They, as a general rule, affect open grass lands, moors, fields, and low scattered jungle, in contradistinction to the Pheasant tribe which almost always prefer forests or thick coverts; and

several associate in parties called *coveys*, or *bevis*, and in still larger bodies or flocks in winter. The flesh of all is good and high flavored, more so perhaps than that of the Pheasants, but varying of course according to the group, or even the species.

The *Tetraonidæ* may be divided into Grouse, Partridges, American Partridges, Quails and Guinea-fowl, and, as in the last family, I shall consider these as sub-families. Of these, the Grouse are peculiar to the Northern portions of both Continents. Partridges are found in Europe, Asia and Africa, disappearing in the Malayan Archipelago, except to its extreme west; the American Partridges are confined to the New World; and Quails have the same distribution as the true Partridges, but, conversely to that group, have a tendency to accumulate in the South-eastern portion of the Malayan Archipelago and Australia, where, with *Turnix* of the *Tinamidæ*, they are the only typical Gallinaceous birds. The Guinea-fowl of course are confined to Africa.

The sub-fam. TETRAONINÆ, or true Grouse, are not represented in India, being peculiar to the Northern portion of both Continents. They are mostly birds of large or moderate size, and of strong flight, with the tarsus and toes more or less feathered; they frequent heathery moors, or upland and hilly pastures. Some, the Grouse, are polygamous; others, as the Ptarmigan, so similar otherwise to Grouse, are monogamous. The plumage is in general dark, and of very game character, and the flesh is the most highly flavoured of any of the *Gallinacæ*. The best known are the Scottish Grouse, *Tetrao scoticus*; the Black-cock, *Lyrurus tetrix*; the noble Capercailzie, *Urogallus vulgaris*; and the mountain-loving Ptarmigan, *Lagopus mutus*. Several other species of Grouse occur on the Continent of Europe and Northern Asia, and one species of Ptarmigan occurs in the Caucasus, but as yet no species of Grouse or Ptarmigan has been observed on the Himalayas or adjacent territories. The Ruffed Grouse of Europe, *Bonasa betulina*, Scopoli, descends to a lower latitude than any of the true Grouse; and Mr. Blyth states that he has recognised a new species of this group among some Chinese drawings. Many Grouse are found in North America, one group, the *Centrocercus*

or Pin-tailed Pheasants, as they are there called, being peculiar to that region.

Sub-fam. *PERDICINÆ*.

Tarsus not feathered; orbits generally plumed, or wanting the nude eyebrow of the Grouse; tarsus often spurred.

This sub-family comprises an extensive group of birds of moderate or small size, found over the greater part of the Old Continent, frequenting fields, pastures, reeds, moors, and rocky hill sides, very rarely preferring forests or jungles. They are distinguished from Grouse by having the tarsus nude and generally scutate. The beak is generally short and tolerably compressed, the margin entire, and the nostrils protected by a hard scale. They lay numerous eggs, and feed on grain, berries, insects, and small molluscs.

There are several distinct types of form among them, differing in the spurring of the tarsus, longer or shorter bill, coloration, and habits; and they are found throughout the Old World, not extending to the eastern portion of Malayana, nor to Australia.

The Partridges occurring in India may be divided into Snow-ckocks and Snow-partridges, peculiar to the highlands of Central Asia and the Himalayas; Partridges, (in ordinary parlance) comprising the Francolins, Chukors, Grey-partridges, Wood-partridges and Bush-quails. Besides, there are the true Partridges, represented by the common Grey-partridge of Europe, with one species from Thibet; and the great group of African Partridges.

1st.—SNOW-CKOCKS AND SNOW-PARTRIDGES.

These comprise two genera of mountain Partridges peculiar to the higher regions of Central Asia, which combine the naked tarsi of Partridges with the habits and aspect of Grouse and Ptarmigan, and may thus be said to form a link, both structurally and geographically between the two groups. Both occur within our limits. Bonaparte places them in his section *Tetrao-gallæ* of his *Perdiciinæ*, but badly associates with them *Galloperdix*, *Francolinus*, and the Grey-partridges of India, and also most of the African Partridges, some of which, from their size, may perhaps enter this group. Gray associates them with the Rock and Sand-partridges (*Chukors*) to form his sub-fam. *Caccabinæ*.

Gen. **TETRAOGALLUS**, Gray.

Syn. *Megaloperdix*, Brandt.—*Chourika*, Motsch.—*Oreotetrax*, Cabanis.

Char.—Bill longish, stout, broad; a small naked patch behind the eye; wings moderate and somewhat pointed, having the 2nd and 3rd quills the longest; tail ample, moderate, of eighteen feathers; tarsi short, stout, with a short blunt spur. Of large size—Sexes alike.

Until recently but one species was recognised in this fine group, but now four very distinct species have been discriminated, and a fifth indicated. They are birds of large size, as large as a Black-cock, of a light mottled grey colour; and they frequent the highest spots close to the snows; from their large size they are often popularly called Snow-pheasants; but, from their association with the birds of this group, perhaps had better be called Snow-cocks.

18. **Tetraogallus Himalayensis**, GRAY.

BLYTH, Cat. 1487—GOULD, Birds of Asia, pt. V., pl. 2—T. *nigelli*, apud GRAY, HARDWICKE, Ill. Ind. Zool. vol. 2, pl. 46—*Lophophorus nigelli*, JARD. and SELBY, Ill. Orn. 3 pl. 141—*Jer-monai* in the N. W. Himalayas—*Kabak*, and *Gourkagu* in some parts—*Huin-wal*, in Kumaon—Snow-pheasant, Snow Chukor, and Strath Chukor of sportsmen.

THE HIMALAYAN SNOW-COCK.

Descr.—Crown of head, cheeks, and back of neck grey, the rest of the upper parts light ashy-grey, minutely freckled with black, purer ashy on the wings, and tinged with brownish rufous on the back; each feather of the back, rump, and wing-coverts, striped with dull buff, more rufous, and inclining to chesnut brown on those of the wings; primaries white, broadly tipped with dusky freckled grey; tail reddish on the outer web, minutely freckled with black; freckled grey on the inner webs; beneath, the chin and throat are whitish; a band of chesnut passes from above the eye down the sides of the nape, and another from the angle of the mouth passes down the sides of the neck and meets the first, when

it forms a collar round the lower part of the throat; beneath this the breast plumes are somewhat scale-like, the upper ones greyish with a black lunule, the lower ones whitish; the rest of the lower surface is grey, minutely freckled with brown, pale on the flanks, and with a double broad dash of chesnut on each feather; vent and under tail-coverts white; thigh-coverts dark grey.

Bill pale horny; naked patch behind the eye yellow; irides dark brown; legs yellowish red. Length 29 inches; extent 40; wing 13; tail 8; tarsus 3. Weight $6\frac{1}{2}$ lbs.

The females are somewhat smaller, 24 inches long; wing 12; tail 7.

This fine bird is found throughout all the Western portion, at all events, of the Himalayan range, as far as Nepal, but it is not certain if it extends eastwards into Sikim and Bootan. It is also found across the higher ranges in Chinese Tartary and Thibet. It is probably the species observed in Cashmere by Vigne, who states that it inhabits the Snowy Punjab on both sides of the valley, but more common on the Thibet side. 'These fine birds,' says Hutton, 'are common in the Hazara mountains, and are called *Kauk-i-durra* or the 'Partridge of the Ghâts' by the Affghans, and they are sometimes sold in the markets of Cabool and Candahar. They rise in coveys of from ten to twenty, and usually have a sentry perched on some neighbouring rock, to give warning of danger by his low and musical whistle. They are difficult birds to shoot. I found them in patches of the so called Tartaric Furze.' Captain Boys states that it is strong on the wing, and that its flights are very protracted. Its note, he says, 'resembles that of a Dipper (*Cinclus*), finishing with the cluck of a *Chukor*. During flight it emits a shrill whistle somewhat similar to that of the Monaul.'

"It is confined," says Mountaineer, "exclusively to the snowy ranges, or the large spurs jutting from them which are elevated above the limits of forest, but is driven by the snows of winter to perform one, and in some places, two annual migrations to the middle regions; in summer they are only seen near the limits of vegetation. In Koonour (Kunawur) they are common at all seasons from Cheenee upwards, but on the Gangetic hills, from June till August, however much a person wanders about on the

highest accessible places, but few are met with, and I have no doubt whatever, but that nearly all which at other seasons frequent this part, retire across the snow into Chinese Tartary to breed. About the beginning of September they are first seen near the tops of the higher grassy ridges jutting from the snow, and the green slopes above and about the limits of forest. After the first general and severe fall of snow they come down in numbers on to some of the bare exposed hills in the forest regions, and remain there till the end of March. This partial migration is probably made in the night after the fall of snow, as I have invariably found them in their winter quarters early the next morning. It requires a deep fall to drive them down, and some mild winters, except a few odd birds, they do not come at all. The birds on each respective hill seem to have a particular spot for their winter resort, which they return to every year the migration is made.

“The Snow-pheasant is gregarious, congregating in packs, sometimes to the number of 20 or 30, but in general, not more than from 5 to 10; several packs inhabiting the same hill. In summer the few which remain on our side are found in single pairs generally, but across the snow where the great body migrate, I almost always, even then, found several together. They seldom leave the hill on which they are located, but fly backwards and forwards when disturbed. The Ring-tailed Eagle is an inveterate annoyer of these birds; inhabiting such exposed situations where there is nothing to conceal so large a bird from his sight, as he sails along the hill side above them, they at once arrest his attention, and are driven backwards and forwards by this unrelenting tormentor all day long. On the appearance of one of these birds, which fortunately for them are not very numerous, they seldom wait till he makes a stoop, but on his making a wheel near the spot where they are, immediately fly off to another quarter of the hill, the eagle never flies after or attacks them on the wing; so that though he allows them little quietude while near their resort, he only occasionally succeeds in securing one.

“The Jer-moonal never enters forest or jungle, and avoids spots where the grass is long, or where there is underwood of any kind.

It is needless to add that it never perches. During the day, if the weather be fine and warm, they sit on the rocks or rugged parts of the hill, without moving much about, except in the morning and evening. When cold and cloudy, and in rainy weather, they are very brisk, and are moving about and feeding all day long. When feeding they walk slowly up hill, picking up the tender blades of grass, and young shoots of plants, occasionally stopping to snatch up a certain bulbous root, of which they seem very fond. If they reach the summit of the hill, after remaining stationary some time, they fly off to another quarter, alighting some distance down, and again picking their way upwards. When walking, they erect their tails, have a rather ungainly gait, and at a little distance have something the appearance of a large grey goose. They are partial to feeding on spots where the sheep have been kept at nights when grazing in the summer pastures. These places have been called "tatters" by the shepherds, and the grass on them keeps green and fresh long after the rest of the hill is quite dry and brown. They roost on the rocks and shelves of precipices, and return to one spot many successive nights.

"Their call is a low soft whistling, occasionally heard at intervals throughout the day, but more generally at daybreak. It is most common in cloudy weather. The first note is considerably prolonged and followed by a succession of low rapid whistles, and it is by far the most agreeable song of all our game birds. This note is only heard when the bird is at rest; when alarmed and walking away, it sometimes utters at short intervals a single low whistle, and when it gets on the wing the whistles are shrill and very rapid. However far it flies, the whistling is continued until it alights, and for a few seconds afterwards, but then slightly changed in tone to a few notes which seem in a strange manner to express satisfaction at being again on the ground. However odd the comparison, I can compare the whistling of these birds when flying and alighting to nothing but the difference of sound produced by the wings of a flock of Pigeons when flying, and when alighting on some spot where they have to flutter a few seconds before they can gain footing.

"The Jer-moonall is not remarkably wild or shy. When approached from below, on a person getting within eighty or a

hundred yards, they move slowly up hill or slanting across, often turning to look back, and do not go very far unless followed. If approached from above, they fly off at once without walking many yards from the spot. They seldom in any situation walk far down hill, and never run except for a few yards when about to take wing. The whole flock get up together; the flight is rapid, downwards at first, and then curving so as to alight nearly on the same level. Where the hill is open and of great extent, it is often for upwards of a mile, at a considerable height in the air; when more circumscribed, as is often the case on the hills they frequent in winter, it is of shorter duration, perhaps merely across or into the next ridge.

“They feed on the leaves of plants and grass, and occasionally on moss, roots, and flowers; grass forms by far the greater portion. They are very partial to the young blade of wheat and barley, when it is first springing up and while it remains short; and should there be an isolated patch on the hill where they are, visit it regularly night and morning. They never, however, come into what may be called the regular cultivation. They are generally exorbitantly fat, but the flesh is not particularly good, and it has often an unpleasant flavour when the bird is killed at an high elevation, probably owing to some of the plants it there feeds upon. Though I have spent many summers on the snowy ranges, I never found the nest or eggs, but in Thibet I often met with broods of young ones newly hatched. There were, however, several old birds, and probably more than one brood of chicks, so I could form no correct idea of the number in one brood. They are hardy birds, and easily kept in confinement, but though they will eat grain, I doubt if they would live long without an occasional supply of their natural green food of grass and plants. They may be kept with the least trouble in large cages, the bottoms of which instead of being solid are made of bars of wood or iron wire, so that the cages being put out on the grass, the birds may feed through the interstices.

The eggs which have been found by travellers are about the size of those of the Turkey, but, like those of the grouse, are of a more lengthened form; their ground color clear light olive, sparingly dotted over with small light chesnut spots.”

Another species of Snow-cock occasionally obtained by Indian sportsmen is *Tetraogallus tibetanus*, Gould, figured in the Birds of Asia, pt. V., pl. 4; but as it has not, I believe, been procured on this side the Snowy range, I shall only briefly describe it without giving it a place among the Birds of India. It is the smallest of the group, only measuring 22 inches; wing $10\frac{1}{4}$; tail 7; tarsus $2\frac{1}{2}$. It has the head and neck grey; the ears white; the upper plumage generally freckled with buff, grey, and black, which latter color forms conspicuous dashes; the primaries grey, secondaries broadly edged externally with white, forming a marked wing-band; tail rufous brown; beneath, the chain, throat and breast are white, separated from the grey of the head and neck by a dusky freckled line, and with a gorget of freckled grey and buff; the abdomen white; the flanks and lower belly with dashes of black, and the under tail-coverts entirely black. Bill horny; legs red; called *Huinwal* in Kumaon.

It has been found in Ladak, Rukshu and other places across the Himalayas. Major James Sherwill informed me that he had seen a bird of this genus close to the snows in the Sikim Himalayas, which he was inclined to identify as the present species, and if so, it must be included among the Birds of India; but, as he did not bring specimens, I must content myself with the above notice. Lt. Speke informed Mr. Blyth that it was very tame and fearless, and could be approached so near as to be knocked down by a stone. Lt. Forbes, however, assured me that those which he procured were not quite so accessible, probably having been occasionally shot at and disturbed.

The other species of *Tetraogallus* are *T. caucasicus*, Pallas; (*Caspicus*, Gmelin; *Lophoph. nigelli*, of Jardine and Selby, Illust. Orn. pl. 76) figured by Gould, Birds of Asia, pt. V., pl. 1. This is found in the high mountain ranges of Persia. *T. altaicus*, Gebler, figured by Gould in the same number at plate 3, more resembles *T. tibetanus*, but is larger, wants the white wing-band, and the lower abdomen and thigh-coverts are black. It is from the Altai mountains. *Chourtka alpina* of Motechoulski is considered by Gould to form a fifth species of this genus.

Gen. *LERWA*, Hodgson.

Syn. *Tetraoerdis*, Hodgson.

Char.—Bill stout, short; orbits plumed throughout; wing moderately long, pointed, of great expanse, the 2nd quill longest; tail of fourteen feathers, rather long and strong; tarsi feathered a short way down. Male with short spurs.

This genus, composed of a single species peculiar to the Himalayas, combines the colors of a Grouse with the naked leg of a Partridge. Gould says that it assimilates in a nearly equal degree to a Grouse, Francolin, and Partridge.

19. *Lerwa nivicola*, HODGSON,

Madras Journ. Lit. 1837—*Perdix Lerwa*, HODGSON P. Z. S. 1833—HARDWICKE III. Ind. Zool. 2 pl. 44 f. 1—GOULD, Birds of Asia, pt. VII., pl. 8—*Lerwa* in Nepal, *Quoir-monai*, or *Koor-monai*—Also *Gulabi*—and *Jer-titar*, i. e. Snow Partridge, in various hill dialects—*Bhyr* or *Bhair* at Simla—*Janguriya* in Kumaon.

THE SNOW PARTRIDGE.

Descr.—Head, neck, and the whole plumage, with the wings and tail minutely barred with black and greyish or buffy white, more grey on the head, neck, rump and upper tail-coverts, and tinged with chesnut on the sides of the neck, shoulder and wing-coverts; quills dusky brown, narrowly freckled with buffy white on their outer edges; the secondaries broadly tipped with white; tail dusky with speckled bars of grey and rufous, and the feathers black shafted; beneath, the chin is greyish; the throat, breast, and upper part of the abdomen deep chesnut red, with dashes of buff or whitish on many of the feathers, especially on the flanks; lower abdomen, vent, and thigh-coverts barred like the upper part, but with a tinge of rufous; lower tail-coverts chesnut-red, with buffy white tips.

Bill bright red; irides dark brown; legs and feet red. Length 15 to 16 inches; extent 24; wing 8; tail 4; tarsus 1½. Weight 18 oz.

The female is a trifle smaller than the male, and wants the spurs, but does not otherwise differ.

This Game-looking bird appears peculiar to the upper Himalayan region near the snows, several travellers having stated that they had not seen them on the Thibet side of the hills. It is found however along the whole extent of the Himalayas, having been found in the extreme North-west as well as in Sikim. Hodgson states that "these birds have the habits and manners of *Tetrao* rather than *Perdix*. They are gregarious in coveys, nestle and breed under jutting rocks, feed on the aromatics, seeds, and insects found in the proper Himalayan region, which they never quit, and amid the glaciers of which they take impenetrable refuge when disturbed. Trees they wholly avoid, and are usually found on the flatter and quasi-heathery ledges which form steps from the snow-bound summits of the Himalayas. The Lerwas moult, I think, twice a year, but certainly in autumn, their plumage being most imperfect in August. They are splendid game, with a vigorous flight, shy, and in size and strength equal to a Grouse. Their flesh is white, succulent and possessed of a very high flavour."

Dr. Hooker observed it in Sikim, and calls it a small gregarious bird which inhabits the loftiest stony mountains, and utters a short cry of *quik, quik*; in character and appearance, it is intermediate between Grouse and Partridge, and is good eating, though tough.

"In general haunts and habits," says Mountaineer "this bird much resembles the Snow-pheasant, frequenting the same high regions near the Snow in summer, and migrating to the same bare hills and rocks in winter. The Pheasant, however, prefers the grassy slopes and softer parts of the hill, the Partridge the more abrupt and rocky portions, where the vegetation is scantier, and more of a mossy than grassy character. They are also more local, and confined more to particular spots, and do not, like the pheasant, ramble indiscriminately over almost every part of the hill. They are generally remarkably tame; when approached, they utter a harsh whistle, and if they keep still, it is often several moments before they can be distinguished, their plumage much resembling and blending with the general colour of much of the ground they

frequent; if approached from above, they fly off at once, if from below they walk away in the opposite direction, calling the whole time, and often cluster together on the top of some large stone in their way. Their flight exactly resembles that of the Pheasant, and the whistle when on the wing being nearly the same, and the birds having the same white on the wings, they could hardly be distinguished when flying past at a distance, but from the size. They seldom fly far, and if followed and put up again, often fly back to the spot where first found. At times they seem unwilling to get up at all, and several shots may be fired at them before they take wing. I once found a flock on a steep ledge of rock in the forest, a few days after a severe snow storm which had driven them down to their winter quarters; they were a little scattered and resting on the projecting ledges, and I fired eleven shots within twenty yards, without one bird attempting to get up. At one bird I fired twice without its moving at all.

“The Snow-partridge feeds on moss and the tender shoots of small plants. It is always fat, and the flesh is tender and well flavoured, and if kept a few days, something like Grouse. They breed near the limits of vegetation, but I have not seen the nest or eggs. I have often met with the young chicks, sometimes a single pair of old birds with their young brood, and sometimes several old birds and two or three broods of chicks, apparently six or seven in a brood. When alarmed, the parent birds exhibit all that distressful anxiety so common with their tribe, and endeavour by drawing the attention of the intruder to themselves to decoy him from the spot. They do not counterfeit lameness like some, but walk away before him, and call out in a most plaintive manner. The young squat close on the ground, or creep beneath the stones, for the herbage where they breed is never sufficiently high enough to hide even the smallest bird.”

PARTRIDGES.

We now come to the true Partridges, which, however, form several distinct groups, separated alike by habits, form, and coloration. In India there are representatives of the “Francolins” and the ‘Red-legged Partridges’ of Europe, and a true Partridge

occurs on the further side of the Himalayas; there are, besides, three other groups, the Grey or Spurred Partridges, peculiar to the continent of India; the Wood Partridges, confined to the Himalayas, in India proper, but extending through Burmah into Malayana; and the Bush-quails, peculiar to India.

1st. *Francolins* or Meadow Partridges.

Gen. FRANCOLINUS, Stephens.

Syn. *Attagen*, Keys and Blas.—*Hepburnia*, Reichenb.

Char.—Bill moderate or somewhat long, stout, slightly curved at the tip; tail of fourteen feathers, somewhat lengthened, even, or very slightly rounded; tarsi of the male with strong but blunt spurs.

The Francolins may be said to be Partridges with more lengthened bill and tail, slightly spurred, and with a peculiar and rich coloration. The group may be considered an Asiatic form, extending to the south of Europe, and to the north of Africa. India possesses two species, and there is another in Burmah; they do not associate in coveys, and Blyth states that they appear to him to have more of the general habits of Pheasants than of Partridges, but to this I must demur. Gould considers them allied to *Cerionis* in the general style of coloring, the short spur, and the form of the bill.

20. *Francolinus vulgaris*, STEPHENS.

BLYTH, Cat. 1500—GOULD, Birds of Europe, pl. 259—*Tetrao francolinus*, LINNÆUS—*Perdix Hepburniæ*, GRAY, HARDWICKE, Ill. Ind. Zool. pl. 55, (the female)—F. Henrici, BONAP.—*Kalattitar*, or *Titir*, H., said to be called *Gaghar* about Benares.

THE BLACK PARTRIDGE.

Descr.—Head, cheeks, and throat, deep black; the top of the head and nape edged with rufous, and with some white spots on the sides of the occiput, forming a pale line; ear-coverts pure white; a broad collar of fine chesnut red passes round the whole neck; upper part of the back black, the feathers edged with rufous and white tipped; the middle and lower back,

rump, and upper tail-coverts finely barred black, and whitish, or grey; wings with the coverts black, with broad bay or rufous edges, and the quills barred with rufous and black; tail black, the middle feathers barred with black and grey, on the upper parts; the lateral feathers being similarly barred at their base only; plumage beneath, from the rufous collar, deep black, more or less banded on the lower part of the abdomen with white, and the flanks of the breast and abdomen spotted with white; thigh-coverts and under tail-coverts chesnut.

Bill black; irides brown; legs yellowish red. Length 13 to 14 inches; extent 20; wing $5\frac{3}{4}$; tail $3\frac{1}{4}$. Weight 13 to 15 oz.

The female differs in wanting the black head and neck of the male, which is more or less rufous, mixed with brown, the throat and sides of the neck being white, and a dusky band surrounds the white portion of the ear-coverts; the back and wings are dusky, with pale rufous edges, whitish on the wing; the back, rump, and upper tail-coverts, are barred pale rufous and dark brown; the tail feathers blackish, with pale bands; the medial pair brown banded; beneath, from the throat, the plumage is white with black spots, longitudinal and arrow-shaped in front, becoming more transverse on the flanks and lower abdomen.

Length $12\frac{1}{4}$ to 13 inches; weight 12 to 13 oz.

The males have a short blunt spur, tubercular at first.

The black Partridge is found throughout the whole of Northern India, from the Himalayas to the valley of the Ganges, but not that I am aware of, extending to any distance beyond the valley of the Ganges until above Allahabad, beyond which it passes to the Punjab, and southwards, through Rajpootana to Sindh and perhaps to Goozrat. Eastwards it extends through Dacca to Assam, Sylhet and Tipperah, but I have seen no record of its occurrence further south in this direction, and it is replaced in Burmah by an allied species. It occurs south of the Ganges between that river and the Hooghly, and I have seen notices of the black Partridge having been shot in Midnapore and Cuttack, but it is certainly rare, south of the Ganges. Various notices appear in several pages of the *Bengal Sporting Magazine* of Black Partridges occurring in the Saugor and Nerbudda territories, Mhow and Bun-

delkund; but in these instances, it has certainly been confounded with the nearly related Painted Partridge, as the Black Partridge does not, to my own knowledge, occur for many miles north of Mhow, Saugor or Jubbulpore, and I suspect not till the valley of the Jumna is reached. Adams says that the Black Partridge is plentiful in Bombay and Bengal, but as he does not give the Painted Partridge at all, he has in some instances, at all events, confounded it with that bird. The Black Partridge extends along the valleys of the Himalayas for some distance in the interior, but not ascending high; and I observed it on the Khasia hills at nearly 4,000 feet of elevation. The Black Partridge from Sindh is put as distinct by Bonaparte under the name of *F. Henrici*, and a drawing of the Sindh bird in Sir A. Burnes' collection gave some color to the separation; but Sir B. Frere, to whom I applied, having sent several specimens from Sindh, they proved to be perfectly identical with the Partridge of Bengal. Out of India the Black Partridge inhabits Northern Africa and the South of Europe, especially Malta, Sicily, and probably part of Western Asia.

The Black Partridge frequents, by preference, grass meadows near water, also cultivated fields of corn, mustard or pulse, and any patch of moderately high, green herbage, also occasionally jhow jungle; and it is not unfrequently flushed in moderately long grass interspersed with bushes, even at some little distance from water. It never associates in regular coveys, though several may be flushed not far from each other; and, indeed, it is generally to be found in pairs at all seasons.

From January to August, the call of the Cock-bird may be heard, a harsh sort of cry which has been variously rendered by sounds in different languages; but these imitations, though intelligible to those who have heard the call, fail to give anything like a correct idea to a person who has not had the opportunity of hearing it. The Mussulmans say that it repeats the pious words, '*Sobhan teri kudrut*;' others say it calls out '*Lussun, piaz, udruk*,' or garlic, onions, ginger. Adams syllabizes it as '*Lohee-uha-which-a-whick*', and some one else puts it as '*juk-juk, tee-teetur*.' One writer calls it like the harsh grating

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blast of a cracked trumpet; but it is far from being a loud call, though sufficiently audible for a great distance. This call is almost always uttered from a slight eminence, a bank, ant hill, or clump of earth, and where it abounds, answering cries may be heard from all sides. It generally calls much after rain, or after a heavy dew.

The hen Partridge breeds from May to July, laying ten or twelve eggs (sometimes, it is stated, as many as fifteen) of a pale bluish white colour, according to some writers, but those I have seen were pale greenish, when first laid; and she usually has her nest in the grass, sometimes in an Indigo field, and occasionally in a Sugar-cane field.

In the cold weather, after the young have flown and separated from their parents, they may be found scattered over a greater expanse of country than in the hot weather and rains, and are often to be found in fields far from water. This Partridge is stated occasionally to perch on and to roost on trees, but this is certainly a rare habit with this species, though not uncommon with the Painted Partridge.

The Black Partridge is strong on the wing, but flies steadily and affords a fair shot. Its pursuit is a favorite sport in many parts of the country where it is at all abundant. It is stated in the *Bengal Sporting Magazine*, for 1841, that seventy-five brace have been bagged in one day by one gun, near Kurnal in the Upper Provinces, but it is now everywhere more scarce than it used to be formerly. It is tolerably good eating, especially when kept for a few days and eaten cold. In some parts of the country tippets used to be made of the beautiful black, white-spotted feathers of the lower plumage, and were in much request, but they are rarely procurable now.

21. *Francolinus pictus*, JARD. and SELBY.

Perdix, apud JARDINE and SELBY, Ill. Orn. pl. 50—BLYTH, Cat. 158—SYKES, Cat. 158—JERDON, Cat. 272—*Kala-titar*, H. and Mahr.—*Kakkera kodi*, Tel.

THE PAINTED PARTRIDGE.

Descr.—Forehead, lores, face, broad supercilium, and ear-coverts, ferruginous-chesnut; the top of the head dark brown with pale

edgings; the neck all round pale ferruginous; the upper part of the back and scapulars deep brown, the feathers edged laterally with creamy white, and this gradually passing into the markings of the wings, which are chesnut with black bands; the lower back, rump and upper tail-coverts are beautifully marked with undulating lines of black and white; tail deep brown, the feathers finely cross-barred at their base; beneath, the throat is white, with longitudinal dark lines; the whole of the rest of the lower surface variegated black and white, each feather being white, with two dark cross-bands, and the shaft and tip black; these dark bands gradually narrow towards the vent; under tail-coverts chesnut, the feathers of the flanks and sides of the rump are tinged with pale ferruginous.

Bill blackish; irides dark brown; legs yellow red. Length 12 inches; wing 6; tail $2\frac{3}{4}$; tarsus $1\frac{3}{4}$. Weight 11 to 13 oz.

The female differs in having a somewhat ferruginous tinge beneath, and in the throat being more or less rufous.

The Painted Partridge may be said to take the place of the Black in Central and part of Southern India. It is found throughout Bundelkund and the Saugor and Nerbudda territories, and thence south through Nagpore and the Deccan, to about N. L. 15° , gradually becoming more scarce southwards. I have heard of its occasional occurrence near Bangalore still further south, but where the land is higher and the climate cooler. West, it extends into Candeish, and perhaps Guzerat, but is not known on the Malabar Coast; and eastwards, it is found throughout Chota Nagpore and adjacent lands to the more open parts of the Northern Circars, as far as Cuttack, but far more rare there than in the west of the Peninsula. I have found it most abundant in the Deccan near Jalna, and at Mhow; less so in Saugor, Nagpore and Hyderabad.

Like its northern congener, it delights in grassy plains and fields, but more affects open, dry, and raised plains with scattered bushes, than the low-lying, damper meadows that the Black delights in. It is always, when the grain is ripe, as well as at other times not unfrequently, to be found in wheat fields and other cultivated lands, and occasionally in open and grassy glades in

the midst of thin forest jungle. It chiefly occurs in pairs, now and then several, not far from each other. Early in the morning, the cock-bird may be heard uttering his peculiar guttural call or broken crow, *Chee-kee-kerray—Chee-kee-kerray*, which can be heard a very long way off, though by no means loud, and is answered on all sides. On approaching the spot whence the sound proceeds, if carefully looked for, he may be seen seated on the stump of a tree, or a thick bush, or an ant-hill or other elevated spot; but when he finds himself discovered, he slinks down, and runs off in a way that puzzles dogs much.

The female breeds from June to August, laying seven or eight eggs of a creamy or smoky white, generally near the shelter of some bush. "The poults," remarks a writer in the *Bengal Sporting Review*, "begin to call soon and chirrup like Crickets." When the grass is not too high, the Painted Partridge affords very fair shooting with a steady pointer, as also in the wheat fields in November and December, when the birds have scattered. I have seen this bird perch on a low tree, but very rarely, and only when disturbed by a dog; certainly not so commonly as is implied by a writer in the *Bengal Sporting Magazine* for 1841. This Partridge is very fair eating, especially when kept long enough and eaten cold.

Francolinus Phayrei, Blyth, (if distinct from *F. pintadeus*) is common in all upper Burmah as at Thyet-Myo, and has a very similar call to the Painted Partridge, but is more given to frequent grassy spots among jungle. *Tetrao pintadens*, Scopoli, (*perlatus*, Temm.) from China, has been separated by Reichenbach as *Margaroperdix*, but on what grounds it would be difficult to say.

2nd.—Rock or Sand Partridges.

Gen. CACCABIS, Kaup.

Syn. *Perdix*, Bonap.—*Chacura*, Hodgson, postea *Pyetes*.

Char.—Bill somewhat lengthened, stout, red; tarsi of male with a blunt spur, red; tail of twelve or fourteen feathers, not quite concealed by the upper tail-coverts; a small nude patch behind the eye; plumage not mottled.

The Red-legged Partridges form a well marked group, spread over the temperate and warmer parts of Europe, Western and

Central Asia, and the north of Africa, including Madeira and the Canary islands. They are well characterized by a plain unmottled plumage with some rich bands on the flanks, and, as Blyth remarks, they have the desert-coloring in some degree. They affect rocky and hilly ground, in preference to cultivated lands, and associate more or less in coveys. Gray makes a sub-family *Caccabinae* of this and *Ammoperdix*, but rather strangely joins with them *Tetraogallus* and *Lerwa*. Bonaparte retains the generic name of *Perdix* for this genus, as it was undoubtedly the *Perdix* of the Ancients.

22. *Caccabis chukor*, GRAY.

Perdix, apud GRAY, HARDW., Ill. Ind. Zool. 1. pl. 54—BLYTH, Cat. 1503—GOULD, Cent. Him. Birds, pl. 71—*P. græca*, var. of several authors—*Chukor*, H.

THE CHUKOR PARTRIDGE.

Descr.—Plumage above pale bluish or olive ashy, washed with a rufous tinge; lores black, and a white band behind the eye; ear-coverts rufous; wings reddish ashy, the coverts tipped with buff, and the primaries narrowly edged with the same; tail ashy on the central feathers, the laterals tinged with rufous; face, chin, and throat, fulvous or rufous, surrounded by a black band which begins at the eye, and forms a sort of neck-lace round the throat; below this the neck and breast are ashy, changing to buff on the abdomen and under tail-coverts; flanks of the breast and belly beautifully banded, each feather being ashy at the base, with two large black bands, the terminal one tipped with fine maronne, and the space between the bands creamy white.

Bill red; irides yellowish white; legs and feet red. Length 15 to 16 inches; extent 24; wing $6\frac{3}{4}$; tail $3\frac{1}{2}$; tarsus $1\frac{3}{4}$; bill at front 1; weight 18 oz. to $1\frac{1}{2}$ lb.

The female closely resembles the male, but is slightly smaller, and wants the spurs.

This fine Partridge is so very closely allied to *Caccabis græca* of the South of Europe, Africa, and Western Asia, that it has been considered to be a climatic variety of that species, but most systematists keep it distinct. It appears to differ in the less ashy

tint of the European bird, which moreover appears to have the dark collar of greater extent, and in our bird having the chin and throat always more or less rufous.

The *Chukor* is found throughout the Western Himalayas, from the lowest range to the Snows, and passing over into Thibet, but it does not extend so far east as Sikim. It is also met with in the salt range of the Punjab, and its more alpine regions, passing into Affghanistan. It prefers bare and rocky hills with low scrub or jungle, near cultivation.

"In our part of the hills" says Mountaineer (*i. e.* in the North-western Himalayas) "the *Chuckore* is most numerous in the higher inhabited districts, but is found scattered over all the lower and middle ranges. In summer they spread themselves over the grassy hills to breed, and about the middle of September begin to assemble in and around the cultivated fields near the villages, gleaned at first in the grain fields which have been reaped, and afterwards during winter in those which have been sown with wheat and barley for the ensuing season, preferring the wheat. A few straggling parties remain on the hill sides where they breed, as also in summer many remain to perform the business of incubation in the fields. In autumn and winter they keep in loose scattered flocks, very numerous, sometimes to the number of forty or fifty, and even a hundred. In summer, though not entirely separated, they are seldom in large flocks, and a single pair is often met with. They are partial to dry stony spots, never go into forest, and in the lower hills seem to prefer the grassy hill sides to the cultivated fields. This may probably be owing to their comparatively fewer numbers, as I have observed that many others of the feathered race are much shyer and more suspicious of man when rare, than those of the same species in places more numerous. Their call is a kind of chuckling, often continued for some time and by a great many birds at once. It is uttered indiscriminately at various intervals of the day, but most generally towards evening.

"The *Chuckore* feeds on grain, roots, seeds, and berries; when caught young, it becomes quite tame, and will associate readily with domestic poultry.

"From the beginning of October, *Chuckore* shooting, from the frequency and variety of the shots, and the small amount of fatigue attending it, is to one partial to such sport perhaps the most pleasant of any thing of the kind in the hills. About some of the higher villages, ten or a dozen brace may be bagged in a few hours. Dogs may be used or not at the discretion of the Sportsman; they are not at all necessary, and if at all wild are more in the way than otherwise."

"The male," says Major Brown,* "is very bold, and is tamed for the purpose of fighting. In a domesticated state, he makes no hesitation in offering battle to every animal, and pecks very fiercely, always searching for a tender part; the nose of a dog, or the naked feet of the native servants immediately attract his attention, and he soon makes the object of his attack fain to run." "When reclaimed" says another writer in the same periodical "this bird is peculiarly bold, fearless, and entertaining. It trots about the house, and is as familiar as a little dog. It is amusing to see its antipathy to quick motions in others. It will follow a servant who hurries into a room, pecking at his heels, scouring away when he attempts to turn upon it. It is still more persevering against the poor wight who moves backwards and forwards as he pulls the punkah. Half asleep at his task, he is roused by a fierce attack on his legs. He attempts to continue his work, and at the same time to drive away the intruder, but it is of no use; and he is at last obliged to call for assistance to rid him of his persecutor."

The Hen-chukor lays from eight to fifteen eggs, of a creamy white, according to one writer; pure white according to Adams; and the male bird is said to remain near the nest during incubation, and may be heard calling all day, its call much resembling that of the domestic hen, being a '*cuc-cuc*' often repeated, and the Cashmeeres call it *kau-kau* from its cry. The Affghans call it the Fire-eater. It is considered to be excellent eating. In Ladak it is said to be numerous in the cultivated part of the country, and is there called *Nek-pa*.

* Beng. Sport. Mag.

Caccabis rufa, the Red-legged Partridge of France and Western Europe, has been partly naturalized in England, and drives away the common Partridge. *C. petrosa* has been unnecessarily separated by Kaup as *Alectoris*.

Close to the red-legged Partridges come the Sand-partridges.

Gen. AMMOPERDIX.

Char.—Of small size; bill somewhat lengthened, red; wings long; tarsus wholly devoid of a spur or even of a knob. Otherwise as in *Caccabis*.

The Sand-partridges may be said to be simply dwarf Chukors, to which they are allied in color, habits, and geographical distribution. Only two species are known, both found in Western Asia, one of which extends into the North-western limits of our region.

23. *Ammoperdix Bonhami*, GRAY.

Perdix, apud GRAY, P. Z. S.,—GOULD, Birds of Asia, pt. III., pl. 4—figured Beng. Sport. Mag. 1843—*P. griseogularis*, BRANDT.—*Sisi*, H. in the Punjab.

THE SEESEE PARTRIDGE.

Descr.—Male, above pale isabella brownish, finely freckled with dusky; the crown of the head and cheeks grey; forehead and a narrow line over the eye black; lores and ear-coverts silky white, rufous posteriorly; beneath this a narrow black line; rump and upper tail-coverts much speckled with black; primaries dusky within, isabella brown on the outer webs, with dusky pencillings, and all but the first, barred on their outer webs with whitish; tail chesnut brown, paler at the tip, and freckled with black; beneath, the throat is greyish white, the breast delicate grey, and the sides of the neck grey with numerous white spots, and a few black specks; breast pale rufous isabelline or vinaceous; the feathers of the flanks whitish tinged with vinaceous, and dashed with rufous and dark brown; lower tail-coverts pale chesnut.

Bill fleshy, (brownish yellow according to Adams); irides hazel brown; legs and feet olive yellow. Length 10 inches; wing 5; tail $2\frac{1}{2}$; tarsus $1\frac{1}{2}$; bill at front $\frac{5}{8}$.

The female differs, according to Gould, in having the black markings of the head replaced by freckled black and white; the

general colour more grey and the wings more freckled. According to Blyth, she wants the ashy crown of the male, and is minutely mottled all over, both above and beneath.

This small species of Partridge was named almost simultaneously by Gray and Fraser after the first gentleman who had sent specimens to Europe. It is closely related to *A. Heyi*, but is somewhat larger, and that species wants the white spots on the sides of the neck. The females are said to resemble each other very closely. One point of difference of the two species mentioned by Gould, viz., the colour of the legs, is contradicted by Adams, who says that the color of the legs of *Bonhami* is a 'lighter brownish yellow than the bill.'

The Seesee, as this small Partridge is named, is only found in the Punjab, in the Salt range of hills, more abundant across the Indus on the Suliman range, near Attock, and in the Khyber and Bolan passes; and it is still more common in Afghanistan and Persia, whence the original specimens were sent. It is there called *Tee-hoo*. Gould states that it was also brought from Thibet by Lord Gifford. Adams says that it is not found further south than the Salt range; but a writer in the *Bengal Sporting Review*, on the game of Sindh, distinctly indicates it under the name of the Rock or Barbary Partridge as found across the Indus. It frequents rocky ground with brushwood here and there, and is often seen in company with the Chukor which it much resembles in habits; is found in coveys which when sprung rise with a startling noise, and feeds much on a kind of wild Thyme. The flesh is said to be delicious. The name *Seesee* is given from its call. Theobald found the eggs, twelve in number, of a clear cream colour, laid in a slight hollow among stones in the hills.

The other species, *A. Heyi*, is also figured by Gould, in *Birds of Asia*, pt. III., pl. 5. It is found in Western Asia, Palestine, Arabia, &c.

3rd.—Grey or Bush Partridges.

The Grey Partridges of India come under this head; they are somewhat similar in coloring to the English Partridge, but differ in being strongly spurred.

Gen. ORTYGORNIS, Reichenbach.

Syn. *Plectroperdix*, Blyth.

Char.—Bill lengthened, tip well turned over; legs red, with one strong and sharp spur, occasionally two; tail rather short, of twelve feathers, wings moderate.

This form, as far as we know at present, is peculiar to the Indian continent, but some of the African Partridges appear nearly allied to it. Only two species are known, very similarly coloured above, but differing greatly in size and haunts. They are bold birds, of truly perdicine habits, having a great tendency to form coveys; but they run much and very rapidly, and frequently perch, as well on bushes and low trees, as on high reeds.

24. *Ortygornis Ponticeriana*, GMELIN.

Tetrao apud GMELIN—SYKES, Cat. 159—JERDON, Cat. 273—BLYTH, Cat. 1506—*Perdix orientalis*, GRAY—HARDWICKE, Ill. Ind. Zool. 1. pl. 56, f. 2—*Titar*, H.—*Gora titar* of some—*Kawunzu*, Tel.—*Koudari*, Tam.

THE GREY PARTRIDGE.

Descr.—Head above olive brown, rufous on the forehead, over the eyes, and on the nape; lores and face also rufous, with black specks; ear-coverts silky hair-brown; upper plumage, including the wing-coverts, upper tail-coverts and central tail-feathers, speckled brown, each feather being rich red brown with three bars of creamy yellow, and paler and somewhat olive brown at the tip; primaries pale brown; outer tail-feathers rich chesnut brown, with a dusky brown terminal band, pale tipped; beneath the chin and throat are whitish with small dark brown spots, forming a triangular mark; the rest of the lower plumage ochreous white or creamy, most pronounced on the breast, and with numerous minute cross-bars of brown, somewhat broader on the breast and sides of the neck, where it mingles with the upper plumage; lower tail-coverts ferruginous.

Bill dusky plumbeous; irides hazel brown; legs dull red. Length about $12\frac{1}{2}$ to 13 inches; wing 5; tail $3\frac{1}{4}$; tarsus not quite 2; weight 11 to 12 oz.

The male is strongly spurred, generally only one spur on each leg, occasionally two, the second at the base of the first. Females only differ in not being spurred, and in being a trifle smaller. Young birds have the chin and throat strongly tinged with fulvous.

The Grey Partridge is found throughout the greater part of India, but not frequenting mountainous or forest-clad districts, and it is totally wanting throughout the Malabar Coast, as far at all events as N. L. 17°—18°. It is also very rarely met with north of the Ganges, although recorded as a bird of Nepal by Hodgson, and it is replaced generally in Bengal by the next species. It is not known in Assam nor in any of the countries to the Eastward. Westward it is very abundant in Sindh, and some parts of the Punjab, and it is stated to occur in Persia, as Mr. Blyth informed me, where known as '*Jirufti*.'

It frequents alike bush-jungle, and cultivated lands, being often found in gardens and compounds; and very generally near villages, concealing itself in hedge-rows and thickets. It associates in coveys of varied number, from five to fifteen, is often very difficult to flush, running for a great distance, and with amazing speed, and taking refuge in thick bushes and hedges, whence driven with difficulty. When flushed, it rises with a loud whirr, flies very strongly, but does not take long flights. It frequently perches on low trees and shrubs, and on the branches of thick *Euphorbia* hedges. Its call is a peculiar loud shrill cry, and has, not unaptly, been compared to the word *Puteela-puteela-puteela*, quickly repeated, but preceded by a single note uttered two or three times, each time with a higher intonation, till it gets, as it were, the key note of its call.

This Partridge breeds, chiefly in the dry weather, from February to May or June, the hen-bird laying usually eight or ten eggs, of a cream or stone colour, under a hedge-row or thick bush. One writer in the *Bengal Sport. Review* says, from twelve to eighteen eggs, greyish speckled with red and brown. It occasionally, it is stated, breeds in grain fields, and many nests are said to be destroyed in reaping the crops. "The young," says the same writer, "soon get strong on the wing, and attempt to call when only five

days old." In flight this bird is not unlike the English Partridge, and I have known many sportsmen who considered them to be the same bird. It is considered to be a stronger flying bird, and to be more difficult to bring down.

Though generally dispersed throughout the country, they are seldom so plentiful as to induce Sportsmen to go out after them alone, but a few generally form part of the bag after a day's shooting in Southern and Western India. "I have found Greys with my pointers" remarks a writer in the *Beng. Sport. Mag.* (XIV. 90) "always in a steady way, but subject of course to the peculiar habit of that skulking, running bird; fond of bushes, and strong on the leg, they will walk or dodge before the dogs and sportsmen in a tiresome way, tantalizing and trying to the temper of both man and beast; still the dogs will be staunch to their trail, drawing on them, and standing until they are sprung." It is not, in general, considered good eating, being usually dry and insipid. One writer, however, in the above quoted Periodical, says, "In this respect it has not had justice, being, in October and November, superior to our Black Partridge, but in this country game is so much spoiled in cooking that there is no knowing what to make of it, as it is invariably roasted as dry as a stick." The best way of cooking dry game in this country is the Gypsy or Mexican fashion of enclosing it in a lump of good fire-clay, and roasting it in the fire. Birds (and hares) otherwise dry and insipid, come out of their case juicy and tasty.

When not disturbed much, and near villages, the Grey Partridge is by no means a shy bird. It is easily tamed, and may be brought to follow his owner about like a dog, even through a crowded street. It is very commonly kept by Mussulmans in small cages, sometimes for fighting, as it is highly pugnacious, and fights with great spirit and obstinacy. Partridges with double spurs are esteemed the most for fighting. It will readily utter its call when spoken to, and is generally liberated on a grass plain for a run every morning, returning to its cage when called upon. It is also used as a decoy for wild birds, a tame bird being put down near a covey and made to call, when he is invariably met by a cock-bird, and a battle ensues. The Bird-catcher approaches

cautiously and seizes the wild bird as it is heedlessly engaged in the fight.

This Partridge feeds on grain and seeds of all kinds, and is very partial to small grasshoppers, white ants and other insects. It is often accused of being a dirty feeder when living near villages, but I am inclined to think unjustly.

25. *Ortygornis gularis*, TEMMINCK.

Perdix, apud TEMMINCK—BLYTH, Cat. 1505—HARDWICKE, Ill. Ind. Zool. 1. pl. 56, f. 1.—*Khyr*, or *Kyah* or *Kaijah*, H. --occasionally *Ban-titar*, 'Chikore' or 'Bengal Chikore' of sportsmen in Bengal.

THE KYAH PARTRIDGE.

Descr.—Top of the head olive-brown; supercilium, lores, and a streak below the eye, pale buff or fulvous, and a dusky line passes through the eyes to the upper part of the ear-coverts; upper plumage brown, barred with narrow cross streaks of whitish or fulvous, edged black, and the shafts of the feathers mostly white, except those of the hinder part of the back and rump; primaries plain brown externally, passing to ferruginous brown within; tail ferruginous except the central feathers; beneath, the chin and throat are bright ferruginous brown; the rest of the lower plumage, with the sides of the neck, are brown, with white streaks, edged by black, which on the breast and belly become large dashes or blotches, giving a handsome character to the plumage; lower tail-coverts ferruginous, and the under surface of the wings mostly ferruginous also.

Bill blackish; irides dark brown; legs dull red. Length 15 inches; extent 22; wing $6\frac{3}{4}$; tail 4; bill at front nearly 1; tarsus $2\frac{1}{2}$; weight 17 oz. to 1 lb. 6 oz.

The male is furnished with a strong and sharp spur, $\frac{1}{2}$ inch long. The female is a trifle smaller, and wants the spur. Length $13\frac{1}{2}$ to 14 inches.

This fine bird in its upper plumage, very closely resembles the common Grey Partridge, but the lower surface is very different,

being longitudinally dashed with white instead of narrowly barred ; it is nearly double the size, and has very different distribution and haunts.

The Kyah Partridge is found throughout Bengal, from Tirhoot and Goruckpoor to the Sunderbuns, and extending eastwards into Assam, Sylhet, Cachar and Tipperah. South of this it is not recorded, but it may occur in Chittagong. In the Western Provinces of Bengal, it is chiefly found on the north bank of the Ganges, crossing in a few suitable localities from Monghyr to Rajmahal, and also found between the Bhagirutty and the Ganges ; but not extending to Kishnagur, it is said, nor to the vicinity of Calcutta. It is stated that it used to be found along the banks of the Roopnarain River, but is so no longer. It is found up to the base of the Himalayas, and I have heard of its occurring in the Oude Terai, but it apparently does not go further west.

The favorite grounds for this Partridge are thick beds of reeds and long grass along the banks of rivers, jheels, and water-courses ; and especially in those swampy patches of reeds where the creeping Rose-bushes form thickets impenetrable to aught but an Elephant, though hardly "frequenting swampy churs and reedy waters, the same as the Bittern, Snipe and Heron" as one writer states. "The strongest depths" says a writer in the *Beng. Sport. Mag.* "whether in patches, or in continuous, wavy, thick grass, or seas of jungle hold them." If cultivated land be near, so much the better, for this Partridge loves to feed on open patches of Mustard, Dhal and other pulses, and indeed during the cold weather may frequently be found in the fields at all hours of the day. Occasionally it resorts to dry grassy plains with scattered bushes, but much more generally grassy churs near water. During the rains, and when some of its usual haunts are flooded, it betakes itself to the fields, hedgerows and bush jungle, and at this time affords good sport even to the Sportsman on foot ; and, in some localities when flooded, the Kyah may be seen flying from tree to tree.

This Partridge is generally, except when breeding, met with in somewhat scattered coveys, which rise three or four at a time with a cackling scream ; they fly strong and straight with outstretched

neck, seldom going to any distance, but dropping into some thick covert, and thence often dislodged with difficulty; for it runs much, even among the thick reeds. It very generally, however, especially in swampy thickets, perches on the high reeds, and generally roosts there.

The call of the Kyah is quite similar in character to that of the Grey Partridge, though in a somewhat different tone, and not uttered so hurriedly, and the preliminary chuck is exactly that of its congener. It is one of the earliest birds astir, crowing at day-light, as well as frequently also during the day.

The Kyah breeds early in the spring, in some localities, at all events, from March to May, and at this time is very difficult to put up; indeed, I have seen an Elephant almost break down a bush before the Partridge would rise. The eggs are said to be laid under some thick bush, in a dry spot, and to be white like those of the Grey Partridge. It is a very quarrelsome bird, fighting much with his own species, and one writer states that "the scars of former fights disfigure the breasts of almost every bird you kill." It drives off the Black Partridge if it comes across it.

Shooting the Kyah is, in many parts of the country, only possible on Elephants, as the high grass and reed jungles it frequents are impenetrable to man or dog; and moreover Tigers are occasionally found in the heavy jungles they frequent. But where the patches of reeds and rose bushes are thinner, and of small extent, and with fields and moderately high grass at hand, the sportsman may manage to get a good many shots if aided by a few strong and determined beaters and a good spaniel. Early in the morning, too, by walking down the reedy bank of a jheel or river, bordered by fields, and having a beater or two, with a good dog, you will get several shots as the birds fly across you into their cover. "The scent of this bird" says a writer in the *Beng. Sport. Mag.* "is most gratefully warm to pointers. My dogs would stand to the dead birds as staunchly as to the living ones."

The flesh is excellent if kept, though somewhat more dry than an English Partridge. The same writer above quoted says: "Of all the game birds of India known to me, cold roast Chikore, in my opinion, bears away the palm for delicacy of flavour and texture in

the meat. During the months of November and December, it forms an unrivalled dish for the Epicure in gamey flavour, and an additional inducement to the sportsman to fag and find."

This Partridge has had the name of *Chickore* erroneously applied to it by sportsmen in Bengal, and various writers in the Indian Sporting Magazines have kept up the error. Thus it is well figured by George Trigger as the *Chickore*; and previously a group of them as the *Common Chickore*; and one sportsman, on reading a correct statement that the *Chickore* Partridge is only found in the Himalayas, immediately publishes an article, stating that the writer was perfectly mistaken as to the *Chickore* being found only in the hills; for, that he has shot many near Rajmahal, and elsewhere, he himself having been deceived by the name popularly applied to this Partridge. A bad figure of it is elsewhere given as the *Wood Partridge* of Bengal, also a misnomer. No native ever applies the name of '*Chickore*' to this bird, and it is to be hoped sportsmen will give up applying this name to it, both as being perfectly erroneous, and as misleading naturalists and others.

The Kyah is easily reconciled to confinement, even when taken old, and eats greedily of almost every thing, but having a special preference for white ants. "They are" says the same writer previously quoted, "the most restless creatures imaginable, always on the move and trying to get out at any cranny and bar of the cage. Those which I had, called regularly at day break, sometimes in the afternoon, and in the middle of the night, when there was bright moonlight, and I have heard the wild ones answer them in the night from the borders of the jungle."

Probably not far from this group should come the Malayan *Rhizothera*, founded on the *Perdix longirostris* of Temminck. In habits it is said to resemble the Francolins, not associating in coveys. Both sexes are spurred.

The true Partridges, *Perdix* of most authors, (*Starna* of Bonaparte) are not represented in India, but one species occurs on its northern confines, in Thibet, *Perdix Hodgsoniæ*, Gould, made the type of the genus *Sacfa* by Hodgson. It is figured by Gould in the Birds of Asia, pt. IX., pl. 2, and appears to be quite of the same

type as the true *Perdix* of Europe, being without any indication of a tarsal spur. It has been lately shot by several sportsmen, Captain Smythe, Lt. Forbes, and others, who have sent specimens to the Asiatic Society of Calcutta; but I am not aware of its having been killed on this side of the Himalayas, so shall not include it in the 'Birds of India.' I add a brief description. The upper plumage is olive brown, the lower parts buff; it has a good deal of chesnut red on the sides and back of the neck and wings; the head is red, with white specks, and there is a black line from the forehead round the ear-coverts and throat. A belt of black-edged feathers on the upper part of the belly represents the horse-shoe marks of the English Partridge. Length 13 inches; wing 6; tail $3\frac{1}{2}$.

Perdix cinerea, the English Partridge, has eighteen tail-feathers; it chiefly affects cultivated lands, and is found over all Europe and Western Asia as far north as Siberia. It always associates in coveys, which in winter occasionally collect into packs of several coveys.

The African Partridges are very numerous. They form several groups, two of them, *Pternestes* and *Clamator*, of great size, and sometimes called Pheasants by colonists at the Cape and elsewhere. Some of these extend into Arabia, and travellers there have also called them Pheasants and Jungle-fowl. Blyth indeed is inclined to consider them 'Pheasants with Partridge tails,' but this I cannot agree to. They are mostly devoid of spurs, but some, called Francolins by Dr. A. Smith, have large and even double spurs, *Chaetopus* and *Scleroptila* of modern ornithologists.

4th. Wood-partridges.

Gen. ARBORICOLA, Hodgson.

Syn. *Arborophila*, Hodgson.

Char.—Tarsus not spurred; toes long, with long claws; tail of twelve feathers, short, of rather soft texture.

The Hill-partridges or Green-partridges as they are sometimes called, occur throughout the Himalayas, but are found nowhere else in India proper. They extend into the hilly regions of Assam and the Burmese provinces, as far, at all events, as Tenasserim

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and south of this they are replaced by one or more nearly affined genera. They are of rather small size and plump form, and are the most forest-loving of the family; being only found in dense forests in mountainous districts, or in thick scrub; they live in coveys, and have a whistling call. The sexes differ slightly in plumage, in some of the species at all events.

There are two species within our limits.

26. *Arboricola torqueola*, VALENCIENNES.

Perdix, apud VALENCIENNES—BLYTH, Cat. 1510—*P. megapodia* TEMMINCK, Pl. col. 462, 463—*P. olivacea*, GRAY—HARDWICKE Ill. Ind. Zool. 1, pl. 57—*Ban titar*, and *Peura*, H. *Phokras* in some parts of the North-West Himalayas—*Kohempho*, Lepch.—*Kangkom*, Bhot.

THE BLACK-THROATED HILL-PARTRIDGE.

Descr.—Male, crown of head and ear-coverts ferruginous, passing down the sides and nape of the neck; lores and supercilia black, the latter bordered by a narrow white line; shoulders, back and rump olive with dusky lunules, deepening to black spots on the rump; wing-coverts mixed olive and chesnut, with a few large black spots; chin and throat black, the outer feathers white-margined; the neck and upper part of breast bright olive, with a circle or torque of white below the black throat; the lower breast and belly whitish; the flanks olive, broadly dashed with chesnut and with large white spots; tail olive, black-speckled, and a terminal dark bar.

Bill black; irides deep brown; legs red. Length $10\frac{1}{2}$ to 11 inches; extent 18; wing $5\frac{1}{2}$; tail $2\frac{1}{2}$; tarsus $1\frac{1}{2}$. Weight 8 oz.

The female has the head and neck olive with black speckles; the chin, throat, and sides of the neck light chesnut, with black marks; the neck and breast olive with a chesnut gorget; the rest as in the male.

This pretty Partridge is found throughout the Himalayas, from Simla to Darjeeling. In Sikim it is found from about 6,000 to 9,000 feet, and is often taken in winter by imitating its whistling call. The female is figured in the *Bengal Sporting Magazine* under the name of the *Phokras*.

"This handsome little Partridge," says Mountaineer, "inhabits the forests and jungles, and is never found in open spots or the cultivated fields. It is most numerous on the lower ranges, in the wooded ravines and hill sides from the summit to near the base, but does not occur at the foot of the hills or low down in the valleys. It is not so common in the interior, but met with to an elevation of about 9,000 feet. It is rather solitary in its habits, generally found in pairs, but occasionally, in autumn and winter, five or six will collect together, and keep about one spot. It is a quiet unsuspicious bird; when alarmed it utters a soft whistle, and generally creeps away through the underwood if not closely pressed, in preference to getting up. Its flight is rapid, oftener across the hill than downwards, and seldom very far, in general not more than 80 or 100 yards. Its food being much similar, it is met with in the same places as the Coklass Pheasant, and both are often found together. Indeed, in winter, in some of the forests of the interior, Argus, Moonall, Coklass, and Kalleege Pheasant, and the Hill partridge are sometimes all found within a compass of 50 or 60 yards. I have not seen the nest or eggs. It feeds on leaves, roots, maggots, seeds, and berries; in confinement it will eat grain; in a large cage or enclosure its motions are very lively, running about with great sprightliness from one part to another. It occasionally mounts into the trees, but not so often as a forest bird might be expected to do. In the forests of the interior, in spring, it is often heard calling at all hours of the day. The call is a single loud soft whistle, and may be easily imitated so as to entice the birds quite close. At other seasons it is never heard to call except when disturbed."

27. *Arboricola rufogularis*, BLYTH.

J. A. S. XVIII. 819—BLYTH, Cat. 1511—*Kohom-but-pho*, Lepch.
—*Lakom*, Bhot.

THE RUFIOUS-THROATED HILL-PARTRIDGE.

Descr.—Male, as in the last species, but the black undulations on the back are generally almost obsolete; it has the red head of the last, but the throat, front, and sides of the neck are deep ferruginous, with some small black specks on the throat, and a black

torque or collar separating the ferruginous sharply from the purer ashy of the breast; an ill defined whitish streak with black specks on each side of the throat, and similar but more rufescent supercilia.

Bill black; irides red brown; orbits dull lake red; legs red. Length $10\frac{1}{2}$ to 11 inches; extent 19; wing $5\frac{1}{2}$; tail 2; tarsus $1\frac{1}{2}$.

The female has the dusky bars and undulations well developed, and the throat is more ferruginous than the female of the last, but otherwise there is little difference.

The rufous-throated Hill-partridge was discriminated by Blyth from specimens sent from Darjeeling, and we are ignorant of its range west of Sikim. It probably, however, extends into several of the hill ranges of Assam and Sylhet, for I procured it on the Khasia Hills. Its habits, voice, &c., are very similar to those of the previous species, from which it is not generally distinguished, but the natives of Sikim discriminate them, and have different names for them. The present species is found at lower altitudes than the former one, occurring chiefly from 3,000 to 6,000 feet of elevation, or rather more. Neither of these Partridges are readily obtainable by the sportsman at Darjeeling, owing to the density of the forest. Now and then dogs will put up a covey at which a chance shot may be had; but in general they can be best procured by imitating their whistle, and thus decoying them within short range of the gunner.

Arboricola atrogularis, Blyth, is very closely allied to *A. torqueola*, but differs in the male not having a chesnut head. It appears to be *P. olivacea* of Buch. Hamilton, and is found in the Tipperah Hills and Chittagong. *A. intermedia*, Blyth, occurs in Arrakan; and *A. brunneo-pectus*, Tickell, is from Tenasserim. This species has the wings strongly marked with chesnut. One species, *A. sphenura* is stated to occur in China. To the same group belong *Perdix personata*, Horsfield, and *P. javanica*, Gmelin, both from Java. *Peloperdix*, Blyth, founded on *Perdix charltoni* of Penang, is a distinct though affined form; and it appears to me that *P. punctulata*, Gray, figured in Hardwicke's Ill. Ind. Zool., is either the same bird as *P. charltoni*, or some nearly related species, perhaps *P. chloropus*, Blyth. *Caloperdix*, Blyth, founded on the *Tetrao ocellatus*, Raffles, (*Perdix oculea*, Temminck) is a very beauti-

ful species, poorly figured in Hardwicke's Illustrations. This is not unfrequently double spurred, and, says Blyth, displays unmistakeable affinities for *Polyplectron* and *Galloperdix*. It extends up the Malayan Peninsula as high as Mergui. It appears to me that *Perdix thoracica*, Temminck, supposed to be from the Philippine Islands, is more allied to this group of Wood-partridges than to true *Perdix* with which Blyth would class it. It has a larger and firmer tail than *Arboricola*, and possesses spurs, which, however, are irregular in number.

As a very anomalous form of spurless Partridges might here be placed *Rollulus* (formerly *Cryptonyx*) *coronatus*, the crowned Partridge of Malacca, extending to Mergui, remarkable for wanting the claw of the hind toe; and *R. niger*, (the female of which is *R. ferrugineus* of Gray in Hardwicke's Illustration,) the type of *Melanoperdix*, which possesses a minute hind claw. Gray places these birds in a distinct sub-family (*Rollulinæ*, Bonap.) in which I think he is right; indeed from their coloration, the fan-like crest, and the different colour of the sexes, they ought rather to be placed with the *Gallinæ* than with the Partridges. The crest is similar to that of the crowned pigeons, *Goura*, and the bare frontal plumes of *Rollulus* are only represented, elsewhere, in this family, by some of the American Partridges.

5th. Bush-quails.

The dwarf Partridges or Bush-quails, belong more strictly to this sub-family than to that of the true Quails, though placed among the latter by Bonaparte.

Gen. PERDICULA, Hodgson.

Bengal Sporting Review, 1837, 1 p. 344.

Char.—Bill short, thick, well curved; tarsus with a blunt tubercle; wings firm, much rounded, outer web of most of the primaries sinuated and moderately firm; tail short, of twelve feathers. Of very small size. Sexes differ in plumage.

This genus is peculiar to India proper, not being found to the east of the Bay of Bengal, nor, as far as we know, across the Indus. It is not very distantly removed from *Perdix*, and has also some more remote analogies with the American Partridges. The species are called Bush-quail by sportsmen, and are found either

in bushy ground or in thin forest jungle. Hodgson noted the firm and quasi-spinous character of the plumage of the neck and breast.

28. *Perdica Cambayensis*, LATHAM.

Perdix, apud LATHAM—*Coturnix* pentah, SYKES, Cat. 156—HARDWICKE, Ill. Ind. Zool. 2, pl. 45 f. 3—Zool. Trans. 2, pl. 3—*C. argoondah*, apud GOULD, Birds of Asia, pt. XV., pl. 13*—JERDON, Cat. 278—BLYTH, Cat. 1517—*P. rubicola*, HODGSON—*P. rubiginosa*, VALENC.? *Girza*, H.—*Girza pitta*, Tel.

THE JUNGLE BUSH-QUAIL.

Male, above rich dark reddish brown, mottled with dull rufous; a long yellowish or rufous white supercilium, narrowly edged with black, and an indistinct pale line from the gape; between this and the supercilium rufous brown; the shafts of the feathers of the back of the neck and the back white; many of the feathers of the back with black markings; and the scapulars and wing-coverts richly marked on their inner webs with pale creamy white and black; primaries red-brown, with fulvous or tawny spots or bars; tail with a few black bars; beneath, the chin is rich chesnut, and the rest of the under surface white, tinged with rufescent on the lower abdomen, flanks, vent and lower tail-coverts, with numerous cross bars of black, small on the throat and sides of neck, increasing in size on the breast and abdomen, and disappearing towards the vent. Bill dusky, with reddish tinge; irides light brown; legs yellow-red. Length $6\frac{1}{2}$ inches; wing $3\frac{1}{4}$; tail $1\frac{3}{4}$; tarsus $1\frac{1}{10}$.

The female has the lower plumage rufous, with whitish shafts in some specimens, and the black markings of the upper plumage less distinct; the throat is generally darker rufous than the rest of the lower plumage. In some specimens the rufous tinge is more distinct above, and in others less so, and the brown has more of a greyish tinge. The absence of the rich rufous throat in many of Col. Sykes' specimens is probably a mark of immaturity.

This pretty little Bush-quail is extensively distributed throughout India, and is found at all levels from the sea-coast to nearly 5,000 feet of elevation. In the south of India it is chiefly found in the more wooded districts in Malabar, Mysore, on the eastern

* Except the account of its habits by Sykes and Burgess which relates to the next bird.

Ghâts, and on the various hill ranges, being rare in the low Carnatic and bare table-land. Colonel Sykes found it on the higher ranges of the western Ghâts at 4,000 feet, and it is found throughout Central India as far as the northern slopes of the Rajmahal, Monghyr and Mirzapore hills. It is not generally found on the north bank of the Ganges, but Hodgson gives it as found in the Sub-Himalayan zone ; and Adams says that it is found in the valleys of the lower ranges of the Himalayas. It does not occur in Lower Bengal, that I know of, nor in any of the countries east of the Ganges, but it is said to be common in the N. W. Provinces.

I have very little doubt of its being Valenciennes' bird, although Sykes is inclined to think it distinct, but the markings, as described, are quite those of the present species and not of the next. Adams quotes it as *Perd. Asiatica*, Latham, but I am inclined to apply that specific name to the red Bush-quail, which is stated by Latham to occur chiefly in the Mahratta country, whilst *cambaiensis* is from Guzerat, where, as far as we know, only the present species is found. Adams, however, states that he has only seen this bird in the upper Himalayas, and not on the plains of India.

In the South of India this Bush-quail frequents open forests ; thick patches of jungle, and especially grassy hill sides with a few scattered bushes : also fields near hills or jungle. Riding through some of the more open forests, especially in the upland districts ; a bevy of this little bird is often seen crossing the road, or feeding on grain dropped by cattle. In the North-west Provinces, however, they appear to frequent gardens, bushes and hedge-rows in more open ground, near stations. Hodgson states them to be migratory in Nepal. A writer in the *Bengal Sporting Magazine*, vol. xi., says that " they are very abundant in the plains of upper India, indeed in some places, scarcely any other game is to be had. According to my observations they are not migratory, but pair and breed about the same time as the Rain-quail (*Coturnix coromandelicus*) in the rains. During this period, the plumage of the male is really handsome. I have seen the parent birds leading forth their young exactly as a Partridge would. A covey of them in my garden never fails me for breaking in my setters."

This bush-quail is found in coveys or bebies of from six or eight to a dozen and more, and generally all rise at once with a loud whirring noise, uttering cries of alarm, and after a short flight drop down again into the jungle.

A tolerable figure is given in the volume of the *Bengal Sporting Review* for 1836, pl. 1, f. 6, under the name of the Bush-quail.

29. *Perdica Asiatica*, LATHAM.

Perdix, apud LATHAM, also Lauwau Partridge, LATHAM, No. 41.—GOULD, Birds of Asia, pt. XV., pl. 12, (except the account of its distribution and habits)—Coturnix argoondah, SYKES, Cat. 155, and Trans. Zool. Soc. vol. 2, pl. 2.*—JERDON, Cat. 277—BLYTH, Cat. 1518—*P. rubiginosa*, VALENC?—*Lowca*, H.—*Lawunka*, Tel.—*Sin-hadeh*, Tam. *i. e.* the red quail.

The Rock Bush-Quail.

Descr.—Male, upper plumage brownish rufous, the feathers minutely freckled and lineolated with black and tawny; the feathers of the head and neck tipped with black, and some of the scapulars and wing-coverts with irregular black blotches; primaries dark brown with tawny bars on the outer webs; tail with the lateral feathers also barred; a narrow white line passes over the eye from the base of the bill, bordered by dusky, and another short line below this from the gape; the rest of the face, chin and throat bright rufous; the whole lower parts, including the sides of the neck, being white with numerous cross bars of black, and tinged with rufous on the flanks, lower belly and thigh coverts.

Bill dark slaty; irides brown; orbits pale; legs red. Length $6\frac{1}{2}$ inches; wing $3\frac{1}{2}$; tail $1\frac{1}{2}$; tarsus barely 1.

The female differs in having the upper surface more uniform rufous brown, and the whole of the lower parts are pale rufous, albescent on the vent; supercilia barely perceptible. Some specimens of males are more uniformly rufous than in the above description, and want the black markings. Judging from the character of the female these birds should be young males.

* NOTE.—Blyth in his Cat. looks on this as *pentah*, the former as *argoondah*, Sykes, but I think that I have correctly applied those names here.

This species differs more from the preceding one than is apparent from the description alone. It is always more rufous than the last, and wants the rich markings on the scapulars. The females are very similar to each other, but those of the present species are more uniform in their coloration than those of the last.

The Rock Bush-quail is found over most of Southern India, avoiding the Malabar Coast and forest districts generally, as well as the more highly cultivated portions. It is abundant in parts of the Carnatic and Mysore, as well as in the more barren portion of the Deccan, but does not appear to occur in the North of India at all beyond the Nerbudda, although very suitable ground for it occurs both at Mhow and Saugor. It frequents rocky hills with low scrub jungle, and especially barren uncultivated plains, scantily covered with low bushes of *Zizyphus* or *Carissa* and other thorny shrubs, out of which the bevy rises, ten or a dozen or twenty together, with a startling suddenness and bustle, dispersing more or less among the neighbouring bushes. The flesh of this Bush-quail, as well as of the last, is perfectly white, and it makes a good pie; plain roasted they are not so good as the species of *Coturnix*, being dry and with little flavour.

The *Lowa* is much used for fighting among the Mussulmans of Southern India, as indeed, the *Geerza* is also, though not so common, nor so highly esteemed. Burgess found this Bush-quail breeding from December to March, but found only four pale buff eggs. It probably lays considerably more.

The next species differs from the previous ones by its more slender and red bill, and the male wants the tarsal tubercle; but it has the rounded wings and much the same habits as the Bush-quails with which I shall continue to associate it, though as a somewhat aberrant species. Gould has separated it under the generic name of *Microperdix*.

30. *Perdica erythrorhyncha*, SYKES.

Coturnix, apud SYKES, Cat. 117—and Zool. Trans. vol. 2, pl. 1—JERDON, Cat. 279—BLYTH, Cat. 1525—HARDWICKE, Ill. Ind. Zool. 2, pl. 44, f. 2—GOULD, Birds of Asia, pt. XIV., pl. 16—*Kokni lowa*, H. of some Shikarces.

THE PAINTED BUSH-QUAIL.

Descr.—Male, forehead, lores, and crown of head black ; a white frontal band, continued as a supercilium over each eye ; upper plumage rich olive brown, with black lunules ; scapulars, wing-coverts and secondaries with large patches of black, the shaft pale yellow, and some faint cross lines of the same ; primaries brown, the outer webs barred with dark rufous ; tail brown with black spots, and barred with narrow pale yellow lines ; beneath, the chin is pure white, bordered by black ; the rest of the lower parts are rufous, passing into olive brown on the sides of the neck, and with a few spots of black on the breast, increasing in size on the sides of the neck and breast ; feathers of the flanks with large spots of deep black tipped with white.

Bill and legs fine red ; irides yellow brown. Length $6\frac{1}{2}$ inches ; wing 3 ; tail $1\frac{1}{2}$; tarsus 1.

The female differs in having the chin, supercilium, forehead, and face rufous, in place of white, and the head is brown instead of being black.

This very handsome Bush-quail has only been found on the higher lands of Southern India, extending along the crest of the Ghâts, from the Wynaad to near Poonah, at all events. I have observed it on the Neilgherries, in the Wynaad, and in Coorg ; Col. Sykes recorded it from the valley of Karleh, associating with *Francolinus pictus*, and Mr. W. Elliot obtained it on the intervening ranges of Dharwar. It is far from rare in Wynaad, and abundant on the Neilgherries, frequenting bushy ground and patches of ferns on hill sides, or in the valleys. It frequently enters gardens at Ootacamund, and may be watched from the windows, running actively about, picking up seeds and insects, and I have known many fall victims to the stealthy pounce of some domestic Cat. It lives in moderately large bevvies, which rise all together, but with less whirr than the other Bush-quails, their plumage generally being softer and not so firm.

No other species are known.

Sub-fam. COTURNICINÆ, Quails.

Wings pointed, rather long ; bill moderate ; tarsi not spurred ; of small size. Sexes differ somewhat in coloration. Of univer-

sal distribution throughout the Old World, but culminating in Australia and Eastern Malayana.

The true Quails are not always kept distinct from the Partridges, but their longer and more pointed wings, great powers of flight, and migratory habits of some, together with their distribution, point them out as a separate group. They are the most widely distributed division of Rasores, being found throughout the whole old continent, as far as New Zealand. One genus is peculiar to Australia and neighbouring islands; and there are two others differing very slightly from each other which have a still wider distribution.

Gen. COTURNIX, Brisson.

Char.—Bill somewhat slender, straight, or slightly curved; tarsi without spurs; tail very short, rounded and soft, concealed by the upper tail-coverts; wings lengthened and pointed, the 1st and 2nd quills longest.

This genus is most numerous in species in the Southern regions of Asia; one species only, the common Quail, being found throughout the greater part of Asia, Europe and Africa.

31. *Coturnix communis*, BONATERRE.

BLYTH, Cat. 1521—*C. dactylisonans*, TEMMINCK—SYKES, Cat. 153—JERDON, Cat. 275—GOULD, Birds of Europe pl. 263—*C. indicus*, HODGSON—*Batter* or *barra batter*, H.—*Ghagas batter*, H. of Falconers—*Gogari yellich*, Tel.—*Peria kadeh*, Tam.—*Lowa*, Mahr. (according to Sykes)—The European Quail.

THE LARGE GREY QUAIL.

Descr.—Male, head brown, with pale edging to the feathers, and a central pale line; eyebrows, cheeks, and lores whitish, with the ear-coverts partially brown; the upper plumage brown, each feather of the back, scapulars, rump and tail having on one side of the pale yellow shaft a fine black patch, and some pale cross striæ; wing-coverts greyish-brown, with narrow streaks and bars of pale yellowish, black bordered; primaries dark brown, with pale rufous spots and bars on the outer webs; beneath, the chin is dull white; the throat rufous brown, with a double blackish

or brown band or collar, separated by some yellowish white, and a few blackish spots on the breast and sides of neck; the rest of the lower plumage pale rufous, deepest on the lower neck and breast, and becoming earthy on the flanks and vent; the long feathers of the flanks pale chocolate color, with a broad central yellow stripe and some black blotches.

The female chiefly differs in wanting the rufous brown patches on the throat and breast, which is much spotted with brown; she is larger than the male.

Bill horny brown; irides yellow brown; legs pale fleshy. Length $7\frac{1}{2}$ inches; extent $14\frac{1}{2}$; wing $4\frac{1}{2}$; tail nearly 2; tarsus 1. Weight $3\frac{1}{2}$ to 4 oz.

The European Quail is found throughout India, in considerable numbers, during the cold weather, most migrating during the rains, and breeding elsewhere, but a few pairs remaining and breeding in various parts of the country, especially towards the West and North-west. The Grey Quail, as it is generally termed in India, generally rises singly or in pairs, but considerable numbers are found together; and, in some localities, and in certain seasons, it occurs in great profusion, and affords excellent sport to the gunner. It is found in long grass, corn-fields, stubble and fields of pulse, wandering about according as the crops ripen in different parts of the country. It is less numerous towards the south of India than further north; but in beating grass-lands for the small Florikin, many are flushed. Dogs stand very steadily to Quail, and in the cool weather excellent sport is to be had, fifty couple being not unfrequently bagged by one gun in a mornings' shooting in the North-western Provinces. In parts of Bengal, they also abound much, and I have heard of seventy-five brace being killed by two guns. I have received several authentic notices of this Quail breeding in India, among other parts of the country in Rajpootana and Bundelkund.

The female lays eight to twelve eggs, dull whitish, blotched and speckled with umber brown. Gunga, in the *Bengal Sporting Magazine*, says, that on one occasion, he found four whitish eggs, dotted and blotched with pale red. The same good observer states, with reference to the abundance or otherwise of Quail, that 'if the

country which lies between us and their breeding country be defective from bad seasons, they proceed on, and reach us in great numbers; on the contrary, if they find food nearer at hand, they stop.' Hodgson states that they reach the valley of Nepal, in greatest numbers, at the ripening of the autumn and spring crops, respectively. Quails are netted in great numbers in some parts of the country, and many are also caught in hair-nooses. The Nepalese have an ingenious way of catching Quail. They put a pair of imitation horns on their heads, and walk slowly about the stubble fields, twirling some blades of grass in their hands in a way to imitate the champing of grass by cattle, and as these birds are not alarmed by cattle, they succeed in driving any quail they see under a small net, which they then drop, and secure the bird.

Sykes, Yarrell and others have expended much learning and paper in endeavouring to show that this bird was the species that supplied food to the starving Israelites, referring to its migratory habits as a proof thereof. It will be seen on referring to page 14, that the large Pin-tailed Rock-pigeon is considered, with more probability, to have been the bird referred to by the Historian.

32. *Coturnix coromandelica*, GMELIN.

Tetrao apud GMELIN—BLYTH, Cat. 1523—GOULD, Birds of Asia, pt. VI., pl. 7—*C. textilis*, TEMMINCK, Pl. col. 35—JERDON, Cat. 276—SYKES, Cat. 154—*Batter* or *butteyr*, H.—*Chinna yellichi*, Tel.—*Kade*, Tam.—'Rain-quail' of some Sportsmen.

THE BLACK-BREASTED QUAIL.

Descr.—Male, upper surface closely resembles that of the Grey-quail, but somewhat brighter, and the colours more pronounced, the yellow stripes being in greater number; chin and throat pure white; two narrow cross bands of black on the throat, the upper one joined by a longitudinal stripe on each side, from the base of the lower mandible; below these, the breast is black, breaking up into black blotches on the abdomen, extending along the flanks as far as the vent; lower belly white, tinged with rufous on the flanks and lower tail-coverts; primaries plain unbarred brown.

Bill dusky; irides brownish-red; legs fleshy-yellow. Length 6 to $6\frac{1}{2}$ inches; extent 12; wing $3\frac{1}{2}$; tail $1\frac{1}{4}$; tarsus $\frac{7}{8}$. Weight $2\frac{1}{4}$ to $2\frac{1}{2}$ oz.

The female wants the black breast and cross bars, and has the neck and breast spotted with dark brown.

Young males have less of the black on the breast which is broken up into spots and blotches. During the breeding season, the black breast is more marked, the bill also is darker, and the legs redder.

This Quail bears so close a resemblance to the large Grey-quail, that many Sportsmen consider it to be the same, in spite of the difference in size, in which they are confirmed by the opinion of some natives who assert that the Rain-quail is the male bird of the Grey-quail. Looking at the upper surface of each, they certainly present a very close similarity, but the lower plumage differs much in the males, less so in females. The two birds, however, may always be distinguished by a glance at the primaries, which are unspotted brown in the present bird, barred in the Grey-quail.

The Rain-quail, as it is called by many Sportsmen, is found throughout the whole of India, rare in thickly wooded or forest districts. In many parts of the country where the grass is short and much dried up in the hot months, it is not found, or at all events, it is rare till the rains have commenced, and the young grass is springing up, when numbers appear all over the country, entering gardens and grassy compounds, and their pleasant whistle *whit-whit*, stronger in its tone than the call of the Grey-quail, may be heard at all hours. On this account it has received its popular name of 'Rain-quail.' Several writers in the *Bengal Sporting Magazine*, including Hodgson, used to consider the Coromandel and Rain-quail to be distinct; but the well-known 'Gunga' shewed that they were the same bird, and that the supposed distinction probably arose from Sportsmen considering that *Rain-quail*, so called, were never met with, except during the rains, whereas they are found at all seasons, but attract attention less in the cold weather, and indeed are then often confounded with the Grey-Quail.

Although it thus moves about, according to the seasons, from one part of the country to another, it is not strictly a migratory bird, and will occasionally be found in suitable spots where there is grass or good cover, at all seasons. It is frequently found in pairs, now and then in bevvies, which however, do not generally rise at once like the Bush-quail. Though not the special object of the sportsman's attention, several of this Quail are frequently shot, along with the large ones. Throughout considerable part of Bengal, this bird does not appear to occur, or at all events to be plentiful during the rains, and as it is the most moist and grassy part of the country, probably many of the birds that disperse over the country during the rains, find shelter and food there in the hot weather. Both this and the Grey-quail are very partial to the grains of Cheenee, a small Millet cultivated extensively in Bengal during the hot weather and rains.

This Quail lays, from six to eight eggs generally, of a creamy pink colour, with a few brownish spots, in a tuft of grass, in June and July.

The Rain-quail extends to Assam, Sylhet, and upper Burmah. I found it abundant at Thayet Myo, in May and June.

Several other true Quails are found in Australia, New Zealand, and some of the most Eastern Islands of Malayana, viz., *C. Novæ Zealandiæ*, Q. and G.; *C. pectoralis*, Gould; and *C. Realteni*, S. Müller. *C. histrionica*, Hartl., is, perhaps, an *Excalfactoria*.

The genus *Synoicus*, Gould, comprises some large-sized Quails peculiar to Australia, and there termed Partridges.

Gen. EXCALFACTORIA, Bonaparte.

Char.—Very similar to *Coturnix*; wings less pointed and more rounded; 1st quill shorter than the 2nd; 3rd, 4th and 5th, graduating very slightly from the 2nd. Of small size, and rich plumage. Sexes differ much in plumage.

I should not have adopted this genus, had not Gould and other modern Ornithologists done so, for it differs but little from true *Coturnix*. It has a more limited geographic range, one species occurring in India, but none in Central or Western Asia, nor

in Africa. Several, however, are found in the Malayan islands and Australia.

33. *Excalfactoria chinensis*, LINNÆUS.

Tetrao apud LINNÆUS—GOULD, Birds of Australia, V., pl. 92—BLYTH, Cat. 1524—JERDON, Cat. 280—Tet. manillensis; GMELIN—Cot. Philippensis, BRISSON—C. excalfactoria, TEMMINCK—C. flavipes, BLYTH, (the female). 'Painted Quail' of some Sportsmen—Rain-quail in parts of Bengal.

THE BLUE-BREASTED QUAIL.

Descr.—Male, head and upper plumage olive-brown, with a central pale streak on the head; the feathers of the back pale-shafted, and with a black band usually on one side only of the shaft; primaries and their coverts uniform olive-brown, some of the greater secondary coverts edged with deep rufous, forming a narrow red wing band, the rest of the quills barred with black; forehead, lores, cheeks, ear-coverts, and breast, of a fine dark purple grey; chin and throat deep black, enclosing a white triangular moustachial patch from the base of the lower mandible; and below the black is a white collar commencing as a narrow line behind the ear-coverts, and curving down and increasing in width on the lower part of the throat; this is narrowly edged by black; the middle of the abdomen, vent and under tail-coverts, rich deep maronne, as are most of the tail feathers.

Bill black; irides deep brown; legs bright yellow. Length $5\frac{1}{4}$ inches; extent 9; wing 3; tail not 1; tarsus $\frac{7}{8}$. Weight $1\frac{3}{4}$ oz.

The female differs in wanting the pronounced lower plumage of the male bird; the supercilium, forehead, and throat are rufous, enclosing a dull whitish chin; the breast is brown, with dark cross bars, as are the feathers of the flanks which are much lengthened; the lower parts are whitish, tinged with earthy-brown. Length 5; extent 8.

This beautiful little Quail recalls the coloring of some of the American Quails, *Ortyginæ*, the grey and maronne tints being similarly present in one or more of that group. The upper plumage, however, is that of typical *Coturnix*. It is found in many parts of India; but generally rare, except in Bengal

and adjacent provinces, and is still more common in Assam and Burmah, where it is very abundant. Thence it extends through the islands to Australia, and it is said to be common in China and the Philippines. I have killed it once only in the Carnatic; one specimen is recorded in my Catalogue from Belgaum in Western India. It occurs occasionally in Central India, and in the Upper Provinces as far as Bareilly, but it is rare in all these localities, and perhaps only stragglers find their way so far. In lower Bengal it is tolerably abundant in damp grassy meadows, the edges of Indigo fields, and in the grass on road sides; and in Purneah, in the month of July, it was the only Quail I observed. It breeds in this month, the eggs being pale olive-green. When the young are full grown, they disperse all over the country, and this dispersion is greatly assisted, and in many parts, perhaps, caused by the heavy inundations to which great part of the country in Bengal is annually subjected, generally in August or September; and in the cold season they are replaced by the Grey-quail, and the so called Rain-quail. A female or young bird, evidently of this species, is figured in the *Bengal Sporting Magazine*, 1836, pl. 1. f. 5, the writer considering it possibly a young of *C. coromandelica*, and Hodgson as young of *C. communis*.

Other species of this pretty genus are *E. novæ guineæ*, Gmel.; *E. Adamsoni*, Verreaux; and *E. minima*, Gould, from Celebes, 'the smallest game-bird in the world.'

The American Partridges form the sub-family *Ortyginæ* of some, *Odontophorinæ*, Gray and Gould, the latter Ornithologist having published a valuable monograph of the group. They comprise several distinct forms, some crested, others not so; they are birds of a size intermediate between a Quail and a Partridge, and are found both in North and South America. One genus, *Odontophorus*, is chiefly found in South America. It has the bill short, much arched, and with two small teeth on each side of the lower mandible near its point. *Ortyx* and its near affines, *Lophortyx*, *Strophortyx*, *Dendrortyx*, are mostly from North America. They frequent fields, hedge-rows, and occasionally woods. The females are said to lay numerous eggs, from fifteen to twenty-four. Blyth remarks that *Lophortyx* appears to bear the same relationship to

Ortyx which *Caccabis* does to *Perdix*, i. e. in its mode of coloration; and the similarity of color of *Lophortyx* to *Excalfactoria* has been already alluded to.

The Guinea-fowls of Africa may either form a separate subfamily of the *Tetraonidæ*, or be considered a distinct family as they are by Bonaparte. They are birds of large size, with short tails of fourteen or sixteen feathers, grey spotted plumage, and with the skin of the head usually devoid of feathers, in other cases plumed, and the head is furnished in some with a bony casque, in others with a crest of feathers. The tarsus is not spurred. They are noisy and gregarious. Blyth considers them 'a most thorough Partridge genus'; I think them sufficiently distinct in appearance, habits, and their limited African distribution, to form a separate family. Bonaparte places the Guinea fowls near the Turkeys, in a separate group, (Cohort *Craces*), along with the *Cracidæ*, thus considering them removed both from the Pheasants (Cohort *Galli*), and the Partridges (Cohort *Perdices*). Several species are known, one of them *N. vulturina* having the feathers of the neck and breast hackled and lanceolate. Among the Guinea fowls should be placed *Agelastes meleagrides*.

Fam. TINAMIDÆ.

Bill moderate, slender, straight, or slightly curved at the tip; wings moderate or short; tail short, occasionally none, the upper tail-coverts lengthened and concealing the tail in many; tarsi unarmed; lateral toes short, hallux small and elevated, or wanting altogether; claws short and blunt.

The birds of this family, mostly peculiar to the new continent, and especially to South America, are represented in the old world and Australia by two or three genera, which have, by most systematists, been usually placed among the Quails, and were located by Cuvier next *Syrnhaptæ*, from the absence of the hind toe in both. Blyth first, I believe, referred these birds to the present family.

The *Tinamidæ* differ remarkably from other *Gallinacæ* in the structure of their sternum, the inner emargination being very deep, but the outer one wanting, or rather the outermost projection of bone bounding it disappears altogether, leaving the sternum

very narrow, and with one deep notch. The furcula is very long and compressed, and its bony edge reaches the front of the sternal crest which is moderately raised. The stomach is muscular, and the intestines rather short with moderately long cœca.

The Indian members of this family may be placed in a distinct sub-family.

Sub-fam. TURNICINÆ.

Of diminutive size. Found in the old Continent and Australia. Three toes in one genus; the hind toe present in another.*

Gen. TURNIX, Vieillot.

Syn. *Ortygis*, Ill.—*Hemipodius*, Reinwardt.

Char.—Bill slender, of moderate length, straight, much compressed, slightly curved at the tip; nostrils linear; wings of moderate length, with the first quill longest in some, or the first three gently graduated; tail feeble, short, concealed by the upper coverts, of ten or twelve narrow feathers; tarsus moderate or rather long; toes moderate or rather short, separated at the base; no hind toe.

This genus is placed by Bonaparte and by Gray, in a sub-family *Turnicinæ* of the *Perdiciidæ*.

These diminutive game-birds may be said to have their head quarters in Australia, whence they spread into Malayana, India and Africa, one species being even found in Spain. Those whose nidification is known, lay several large eggs, dull brownish green with numerous dusky spots; Blyth says only four, like Plovers and Snipe.

Two types are discriminable, the one larger, with the plumage much mottled and barred with black beneath; the other smaller, with the plumage more or less pale or fulvous, with spots. To the latter, Gray restricts *Turnix*, applying *Ortygis* to the former, which Bonaparte distinguishes under the name of *Areoturnix*. I shall not adopt these divisions except as sections.

1st—With the bill stronger, and the plumage of the females black-barred on the throat and breast. *Ortygis* apud Gray, *Areoturnix*, Bonap. In this section the females are larger than

* Mr. Parker's interesting paper on the anatomy of these birds reached me too late to incorporate here, but I will notice it in the Appendix.

the males, and the brightest coloured, as well as the boldest. They live chiefly in bushy jungles with grass.

34. **Turnix taigoor**, SYKES.

Hemipodius, apud SYKES, Cat. 164 (the male) and *H. pugnax*, Cat. 163 (the female)—Trans. Zool. Soc. 2, pl. (the male)—Beng. Sport. Mag. 1836, pl. 1. f. 8.—JERDON, Cat. 268 and 269—*T. ocellatus*, apud BLYTH, Cat. 1526, (rufous variety from S. India, and small variety from Bengal)—*T. rufa*, BONAP. ex BLYTH—*T. bengalensis*, BLYTH—*Gulu* and *Gundlu*, H. in the South—*Salui gundru*, H. in the N. W. P.—*Puredi*, Tel. *i. e.* the bold one, (the female) *Koladu*, Tel., *i. e.* of no spirit, (the male)—*Kurung kadeh*, Tam. (the female), *An-kadeh* (the male)—Black quail of some Sportsmen.

THE BLACK-BREADED BUSTARD-QUAIL.

Descr.—The female is rufous above, with transverse black lines on each feather of the back, scapulars and rump, these having also yellowish white lateral margins, internally edged with black; the crown of the head rufous with a series of black and white feathers, appearing as white spots set off with black, along the medial line; another and broader series over each eye; a third bordering the throat, which, with the middle of the foreneck to the commencement of the breast, (together with the more conspicuous feathers of the wings) is fulvous white, with tolerably broad black cross-bars; below the breast, light but bright ferruginous.

Bill dark slaty; irides pale yellow; legs plumbeous. Length about $6\frac{1}{2}$ inches; wing $3\frac{1}{2}$; tarsus $1\frac{2}{3}$; bill at front $\frac{1}{2}$. Weight $2\frac{1}{2}$ oz. or a trifle more.

The male bird differs in wanting the black on the throat and neck, the chin and throat being whitish; the markings on the head are whitish yellow without black specks; the throat and breast are faintly banded; and the whole tone of plumage is lighter and less pronounced than in the female. Length not quite 6 inches. Weight $1\frac{3}{4}$ to 2 oz.

It will be seen from the name I have adopted and the synonyms, that I do not consider this bird to be the same as the Burmese,

and (perhaps) Malayan race which also occurs within our limits; in the Himalayas, and hence I have taken Sykes' name as the one first bestowed on the peninsular race, albeit applied only to the male, as he considered the female to be *pugnax*, a Javanese bird. As thus understood, the present species may be said to inhabit the whole of Continental India including Ceylon. Specimens from different localities differ slightly. The Ceylon bird is altogether similar in the upper plumage to peninsular specimens, but rather deeper ferruginous beneath; whilst some from Bengal have a slightly darker and browner tone above, but with the whitish edgings to the feathers of the back still more pronounced and wider; whilst the ferruginous colour of the lower parts is perhaps a little paler.

The black-breasted Bustard-quail affects grassy patches in the forests and jungles; also low bushy jungle, and is frequently to be found in fields of Chili, Dhal, and various dense crops, especially if near patches of jungle; for in open and barren country, or very highly cultivated country without jungle, it is comparatively rare. Occasionally small beves of five or six are flushed together, but in general, it is put up singly, or two or three birds together. It feeds on grain of various kinds, but also very much on small insects, larvæ of grasshoppers and the like. The female has a peculiar loud purring call which must be familiar to many.

The hen-birds are most pugnacious, especially about the breeding season, and this propensity is made use of, in the south of India, to effect their capture. For this purpose a small cage with a decoy bird is used, having a concealed spring compartment, made to fall by the snapping of a thread placed between the bars of the cage. It is set on the ground in some thick cover carefully protected. The decoy-bird begins her loud purring call which can be heard a long way off, and any females within ear-shot run rapidly to the spot, and commence fighting with the caged bird, striking at the bars. This soon breaks the thread, the spring-cover falls, ringing a small bell at the same time by which the owner, who remains concealed near at hand, is warned of a capture; and he runs up, secures his prey and sets the cage again in another locality. In this way I have known twelve

to twenty birds occasionally captured in one day, in a patch of thick bushy jungle in the Carnatic, where alone I have known this practice carried on. The birds that are caught in this way are all females, and in most cases are birds laying eggs at the time, for I have frequently known instances of some eight or ten of those captured, so far advanced in the process as to lay their eggs in the bag in which they are carried, before the bird catcher had reached my house. The eggs are said to be usually deposited under a bush in a slight well-concealed hollow; they are from five to eight in number, and of a dull stone grey or green colour, thickly spotted and freckled with dusky, very large for the bird, and very blunt. In the Carnatic this bird breeds from July to September; further south from June to August, and in Ceylon, says Layard, from February to August. The females are said by the natives to desert their eggs, and to associate together in flocks, and the males are said to be employed in hatching the eggs, but I can neither confirm nor reject this from my own observations.

This bird I presume from the description to be the Rain-quail of a writer in the *Beng. Sport. Mag.* for September 1835, who says that "the scent is good and dogs find them well in the evening."

The flesh of this bird is excellent, mixed brown and white, succulent and tasty. Col. Sykes asserts that their fighting qualities are unknown in the Deccan, as also in Java; but they are well known in the south of India; and at Hyderabad in the Deccan, Arcot, and other places, many used to be kept for that purpose by Mussulmans.

35. *Turnix ocellatus*, SCOPOLI.

Oriolus apud SCOPOLI—BLYTH, Cat. 1526, (in part)—*H. atrogularis*, EYTON, (the female)—*H. taigoor* apud EYTON, (the male)—*H. plumbipes*, HODGSON—*H. pugnax* apud GRAY—*Timokpho*, Lepch.—*Timok*, Bhot.

THE HILL BUSTARD-QUAIL.

Descr.—Female, very similar in appearance to the last, but darker, less rufous and browner above, the feathers minutely mottled, and with the pale edgings to the feathers of the back and scapulars, &c., almost wanting, giving quite a different appear-

ance to the plumage; the head too is generally blacker; the black spots on the wings are rounded, and have less of the character of bars and more that of spots. In size it is larger too than the peninsular species.

Bill slaty brown; irides pale yellow; legs leaden. Length fully 7 inches; wing $3\frac{6}{10}$; tail 1; tarsus 1; bill at front $\frac{9}{16}$ ths, stronger than in *taigoor*.

The male bird differs from the female much as that of *taigoor* does, and it has the same characters of the upper plumage as the female.

This species appears to inhabit the Himalayas, Assam and Burmah, perhaps extending into Malayana. Specimens from the Khasia hills and Burmah, quite agree with Himalayan birds, but those from Malacca are still darker, the whole head being blacker, the pale lines on the top of the head and the supercilia hardly contrasting; and the black wing-spots are still rounder than in Himalayan birds, Scopoli's name of *ocellatus* being perfectly applicable to such birds, a trifle less so to Himalayan specimens, and not at all to *taigoor*. It is possible that in Malacca an allied race, *pugnax*, takes the place of the Himalayan and Burmese birds, and perhaps interbreeds with it, as very probably the present bird may with *taigoor*, where the two meet, on the confines of Bengal to the North and East. How far this bird may extend along the Himalayan range westward, I know not, as there are no records of its occurrence further West than Nepal.

The Hill Bustard-quail is found on grassy slopes on the Himalayas, in cleared spots as Tea gardens, and fields; and the female has a similar, but still louder purring call than that of *taigoor*. The female is much more commonly met with than the male. It occurs up to a level of 7000 feet, and I have seen it occasionally in grassy compounds in the station of Darjeeling. I had the egg brought me once, very similar to that of *taigoor*, but darker and a trifle larger.

Other species belonging to this section are *T. pugnax*, Temminck, from Java, possibly the same as *T. luzoniensis*, Gmel.; *T. fasciatus*, Temm., from Macassar, figured by Gould, Birds of Asia, pt. XIII., pl. 16; and *T. nigrifrons*, Cuvier, from some of the islands. Two

African species, *T. nigricollis*, Gmel., and *T. hottentotus*, Temm., probably belong to this group.

2.—With more slender bills, the plumage beneath more or less rufous with a few spots, not black-barred, restricted *Turnix* of Bonaparte and Reichenbach. Sexes alike or nearly so.

36. *Turnix Dussumierii*, TEMMINCK.

Hemipodius apud TEMMINCK, Pl. col. 454, f. 2—BLYTH, Cat. 1530—*T. tancki*, BUCH. HAMILTON apud BLYTH, J. A. S. XII. 181, bis—*T. joudera*, HODGSON—figured, Beng. Sport Mag. 1838 pl. 1, f. 1.—*Pedda daba gundlu*, Tel.

THE LARGER BUTTON QUAIL.

Descr.—Crown light brown, with blackish margins to the feathers ; a central stripe on the crown ; the supercilia and ear-coverts light fulvescent ; nape bright ferruginous ; back ashy brown, tending to rufous, the feathers with dark cross bars, most marked on the lower back and rump ; scapulars and some of the nearest dorsal plumes with edgings of creamy yellow ; wing-coverts light sandy brown, with a small black spot near the tip which is margined with pale yellowish ; quills earthy brown, the primaries narrowly edged with yellowish white ; chin and upper part of throat white ; the rest of the lower parts ferruginous, deepest on the breast and upper part of the abdomen.

Bill yellow ; irides yellowish white ; legs deep yellow. Length $5\frac{1}{2}$ to 6 inches ; wing $2\frac{3}{4}$; tarsus 1 ; bill at front $\frac{7}{8}$.

This large Button-quail (as this species and the next are named by sportsmen in India) is found in open grassy glades in forests or jungles, both on the plains, and more especially in hilly countries, and is also found in grass jungles throughout Bengal and the countries to the eastward. It occurs throughout India in suitable localities, rare in the bare Deccan and North-western Provinces, not uncommon in open glades of the upland districts of Malabar, in the Eastern Ghats and in lower Bengal. It is always seen singly, in patches of long grass or thick cultivation, flying but a short distance, and is very difficult to flush a second time.

37. **Turnix Sykesii**, A. SMITH.

BLYTH, Cat. 1531—*T. Dussumierii*, TEMM. apud SYKES, Cat. 165—and GRAY, List of Nepal birds,—and JERDON, Cat. 769—*T. variabilis*, HODGSON, Beng. Sport. Mag. 1837 p. 345?—figured in the same periodical for 1836 pl. 1. f. 7—and for 1838 pl. 1. f. 2—*Dabki*, H. of some—*Tura* of others—*Chimnaj*, H. at Muttra—*Lubbia*, H. in Purneah—*Tatu battera*, Sindh—*Chinna* (or *tella*) *daba gundlu*, Tel.

THE BUTTON-QUAIL.

Descr.—Head brown, black-barred, with a pale supercilium and central stripe; upper parts chesnut brown, each feather finely barred with black, and edged with yellowish-white, conspicuously on the scapulars and part of the back, and, on the wing-coverts so broadly as to appear entirely yellowish white with chesnut, black-edged spots; quills dusky brown; rump and upper tail-coverts dark brown, closely barred with black, and with faint whitish edges to the feathers; throat whitish, with a few blackish specks on the sides; breast pale ferruginous, with the sides of the neck and breast with dark brown drops and lunules; abdomen whitish. Bill plumbeous; irides pale yellow; legs fleshy whitish. Length 5 to 5½ inches; wing 2¾; tarsus ¾.

This Button-quail, the most diminutive game-bird of India, was first named by Dr. A. Smith, in his Zoology of South Africa, when describing a nearly allied African species *T. lepurana*. It occurs throughout the whole of India, (not however affecting hilly or forest districts,) in grass, corn fields, and wherever there is thick herbage. It is flushed with great difficulty, often getting up at your very feet, flies but a few yards, and drops down again into the grass, not to be re-flushed but after a most laborious search, and sometimes allowing itself to be caught by the hand, or by a dog. Its name of *Dabki*, signifying 'squatter,' is given from this habit. It has a low plaintive moan of a single note. I regret that I know nothing of the habits of this or the previous species as to breeding, &c.

Other species of this group are *T. andalusicus*, Gmelin, figured by Gould, Birds of Europe, pl. 264, found in Africa and the south

of Europe, which has occasionally been killed in England, and there are other African species. *T. maculosus*, Temm., (*Blanfordi*, Blyth) represents *Dussumierii* in Burmah. Several species from Australia, are figured by Gould in his Birds of Australia, and some of these appear to be similar to the birds of the first section; whilst others resemble *Dussumierii*; and one or two have the coloration of the African species mentioned below.

The genus *Pedionomus* of Gould, differs in possessing a hind toe, and is placed by Bonaparte among his *Coturnicinæ*, but it clearly belongs to the present family. It is the *Turnici-gralla* of O. des Murs. Only one species is known *P. torquatus*, of which *P. microurus*, Gould, is considered to be the male. *Oxytelos*, Vieillot, (*Helortyx*, Agass.) has been dedicated to some African species, the best known of which is *O. meiffreni*, V., (*nivosus*, Swainson).

The *Tinamidæ* of South America live in fields, or the edges of woods; and are said to run well but to fly badly; they lay seven or eight eggs; and are seldom found in flocks. They vary from 6 inches to nearly 15 in length. One genus *Tinamotis* makes a somewhat near approach to the Bustards.

ORD. GRALLATORES.

Grallæ, L.—Waders—Shore-birds.

Lower part of the tibia bare; tarsus more or less elongated; feet of most, with the hind toe imperfect and raised, or absent; in a few long, and on the same plane as the front toes; bill very varied; tail usually short; wings lengthened.

The nudity of the tibia to a greater or less extent, and the usually long legs, are the only general features characteristic of this order, which comprises a considerable number of Ground-birds of very varied appearance, habits, and structure. Many have long necks, proportional, in most cases, to the length of the legs. The bill varies from the gigantic beak of the Adjutant and *Mycteria*, to the short and slender bills of the Plovers and *Tringæ*. The outer toe is usually joined to the middle one by a short web, and the inner toe occasionally; whilst in some the toes are perfectly separated. In a few the toes are bordered by a loose web. All, except those of the first family, (which cannot fly at all) and some of the Rails, fly well, and stretch their legs out behind them during flight. They frequent chiefly the edges of rivers, seas and lakes; many affect swamps, and a few dry plains or even sandy deserts. They feed mostly on fish, reptiles, molluscs, insects, &c., and a few on vegetable matter. In a large number, there is a vernal moult, and the plumage changes considerably, in many becoming more or less black, in others rufous. They comprise several very distinct groups, with anatomical differences, and of varied habits, which will be best noticed under each tribe.

They divide into two great groups, the one in which the young, as in the *Rasores*, run at once when hatched; the other in which the young are helpless at birth, and remain in the nest till near maturity, the whole forming five tribes.

A.—The young, when hatched, able to run at once.

1st, Tribe.—*Struthionæ*, comprising the Ostriches, Emeus, &c.

2nd, *Presirotres*, containing the Bustards, Plovers, and Cranes.

3rd, *Longirostres*.—Snipes and Sandpipers.

4th, *Latitores*.—Rails and Water-hens.

B.—With the young helpless at birth.

5th, *Cultirostris*.—Storks, Herons and Ibises.

Tribe—PRESSIROSTRES, Cuvier.

Cursores, apud Bonaparte (in part.)

Tarsi elongated; hind toe small or absent; bill moderate or short, thick, moderately depressed at the base, compressed on the sides.

This tribe, as I recognise it, comprises Bustards, Plovers, and Cranes; in all the young run from the egg. The majority feed chiefly on insects, a few on grain and vegetable diet. They may be distinguished from the next tribe, the *Longirostres*, by their usually shorter and thicker bill, more robust make, average greater size; and in their habits they frequent the open dry plains more habitually than banks of rivers, shores or marshes. A few are migratory, others breed and remain here throughout the year. Several have a double moult, and the change of plumage which takes place, sometimes in the male only, in others in both sexes, is usually to black, in a few cases only to rufous. They lay but few eggs, usually four, sometimes two only, usually dark olive brown, blotched or plain. The Cranes are usually classified next the Herons, by some, indeed, in the same family, but their very different habits, the young running as soon as hatched, and the similarity of their bills, and general form to that of Bustards, all combine to remove them far from the Herons and bring them close to Bustards.

The *Pressirostres* may be distributed among the following families, all of which, except the last, are represented in India:—

1. *Otididæ*, Bustards and Floricans.
2. *Cursoridæ*, Courser-plovers.
3. *Glareolidæ*, Swallow-plovers.
4. *Charadriidæ*, Plovers.
5. *Hæmatopodidæ*, Shore-plovers.
6. *Thinocoridæ*, Game-plovers, a purely American group.
7. *Gruidæ*, Cranes.

Gray, in his List of Genera, places *Thinocoridæ* among the *Rasores*, and considers the Swallow-plovers and Shore-plovers simply as sub-families of the *Charadriidæ*.

Fam. OTIDIDÆ.

Bill rather short, stout, broad at the base, somewhat compressed towards the tip; upper mandible convex and slightly curved; nostrils in a large membranous groove; legs long, rather stout; tarsi reticulated; three short toes united at the base by a small membrane; hind toe always absent; claws short and blunt; wings ample, more or less pointed; plumage mottled and game-like.

Bustards have the heavy aspect and form of Gallinaceous birds, which they also approximate somewhat in the form of their bill, and the short membrane at the base of their toes; but their more nude tibia, and their general anatomy ally them closely with the Plovers. They differ, however, from these last by their less muscular stomach, and partially polygamous habits; and they approach the Cranes and Cassowaries, and perhaps are distantly related to some of the *Thinocoridae*, and also to the *Tinamidae*. Their plumage is beautifully mottled, light olive brown or fulvous and black, and at the spring moult many of them assume various ornamental tufts and plumes, and more or less of a black colour, like several Plovers. Their food is chiefly insects, occasionally in dearth of this aliment, shoots of plants, grain, and vegetable matter. They lay two to five eggs, (or more it is said,) of a dark olive brown colour; and, though not strictly migratory, they wander about a good deal in search of food and shelter. Their wings are strong and very ample, and, contrary to received notions, they use them very freely, and are capable of a tolerably strong and protracted flight. They are found throughout the Old World, extending to Australia.

The sternum has one deep fissure in some, two however in others; the stomach is capacious, with rather thin coats; the intestines are short; and the rectum large, making the nearest approach to the Ostriches. In some there is a gular membranous pouch (communicating with the mouth by a small aperture beneath the tongue), supposed by some to supply water to the female, but, as it only exists in the male bird, and as the Bustards do not appear to drink, it is more probably a sexual appendage, perhaps merely used in dilating the throat. Bustards can raise the feathers round the ears to catch any distant sound.

They vary a good deal in the length and curvature of their beaks, and in the length of the tarsus, as well as in the character of the plumage, and the changes they undergo; and they have been divided into several genera. India possesses representatives of three groups.

Gen. EUPODOTIS, Lesson.

Char.—Bill long, pointed, nearly straight; legs long and strong; wings lengthened and very ample; male provided with a pouch; sexes alike in plumage or nearly so, but the female about a third smaller; no spring moult. Of very large size.

This genus contains some of the largest species in the family, and is found in India, China, Africa and Australia. They frequent bare open plains, as well as high grass and corn fields, and live entirely, or nearly so, on insect food, chiefly large grasshoppers.

38. *Eupodotis Edwardsii*, GRAY.

Otis, apud GRAY—HARDWICKE, Ill. Ind. Zool. 1, pl. 59—BLYTH, Cat. 1539—*O. nigriceps*, VIGORS—GOULD, Cent. Him. Birds, pl. 72—SYKES, Cat. 166—JERDON, Cat. 281—*O. lucionensis*, VIEILLOT? *Tokdar*, H.—*Sohun*, and *Gugunbher* in the North-western Provinces—*Gurayin* in Hurriana—*Burra chirath* in some parts—*Batt-meka*, or *Bat-myaka*, Tel.

THE INDIAN BUSTARD.

Descr.—Male, top of head with crest black; face, nape, and the whole neck, white, the feathers somewhat lengthened and hackled in front; the back and upper plumage, including the shoulder of the wings and the inner wing-coverts, pale olive brown, or buff, beautifully mottled and variegated with minute lines of black; outer wing-coverts black, white tipped; greater coverts slaty-grey, also tipped with white, as is the winglet; primaries dark slaty, more dusky on their outer edges, and white-tipped; tail as the back, with a dark sub-terminal band not always very distinct on the central feathers; a blackish brown band across the breast; lower parts, with the thigh-coverts, white; the flanks dark olive brown; vent and lower tail-coverts the same but lighter.

Bill dusky above, yellowish beneath; irides pale yellow with some brownish specks; legs and feet dingy pale yellow. Length $4\frac{1}{2}$ to 5 feet; extent 8 feet; wing 30 inches; tail 13; bill at front 2; tarsus $8\frac{1}{2}$. Weight 26 to 28 lbs.

The female is one-third less at least, the white of the neck is less pure, generally, indeed, mottled with olive-brown, and with some rufous about the face and eyes; the pectoral band is incomplete, and consists of broken spots; the abdomen is less pure white and the flanks paler brown and more spotted. Length $3\frac{1}{2}$ feet. Young males resemble the females, and it is only the largest old males that have the neck pure white, as described above; in most there being a few brown specks on the neck. In the old male, too, the neck appears very thick, the feathers being well puffed out and full. A fully grown adult male stands very high, above 4 feet. The gular sac is stated to be able to hold about three quarts of water.

This noble bird is found throughout considerable part of India, most common in the West, and not known in Bengal or Behar, nor in the Malabar Coast. It is found occasionally in the Carnatic and Mysore, tolerably common in the Deccan and in the Southern Mahratta country, extending through Central India as far East at all events as Saugor and Rewah, and abundant in Rajpootana. I have not heard of its occurring anywhere in the valley of the Ganges.

The Bustard frequents bare open plains, grassy plains interspersed with low bushes, and occasionally high grass rumnahs. In the rainy season large numbers may be seen together stalking over the undulating plains of the Deccan or Central India. I have seen flocks of twenty-five and more, and a writer in the *Sporting Review* mentions having seen above thirty on one small hill. This writer states his belief that they are never seen in any district that is not characterized by hills as well as plains; but this, from my own experience I would merely interpret that they do not frequent alluvial plains, but prefer the undulating country; for I have seen them on extensive plains, where there were merely a few ridges or eminences, and nothing deserving the name of a hill close at hand. Towards the close of the rains, and in the cold weather before the long grass is cut down, the Bustard will often be found, at all

events in the heat of the day, concealed in the grass, but not for the purpose of eating the seeds of the Roussa grass, as the writer above alluded to imagines, rather for the large grasshoppers that abound so there, and which fly against you at every few steps you take. During the cold weather the Bustard frequently feeds, and rests during the day likewise, in wheat fields. When the grass and corn is all cut, and the bare plains no longer afford food to the Bustard, it will be found along the banks of rivers where there is long grass mixed with bushes, or the edges of large tanks, or low jungle where there is moderately high grass, or it wanders to some district where there is more grass, for though they do not migrate, yet Bustards change their ground much according to the season, and the supply of grasshoppers and other insects. The hen birds, remarks the writer quoted above, generally congregate together during the rains, are very timid, and frequently, when a sportsman is pursuing a single one, she will attempt to seek safety, fatally for herself, in some large bush, particularly if the gunner turn aside his head, and affect not to see her at the moment of hiding. The cock-birds, at this season, feed a mile or so apart from the hens, and stretching their magnificent white necks, stride along most pompously. Besides grasshoppers, which may be said to be their favorite food, the Bustard will eat any other large insect, more especially *Mylabris*, or blistering beetle, so abundant during the rains; the large *Buprestis*, *Scarabæi*, caterpillars, &c., also lizards, centipedes, small snakes, &c. Mr. Elliot found a Quail's egg entire in the stomach of one, and they will often swallow pebbles or any glittering object that attracts them. I took several portions of a brass ornament, the size of a No. 16 bullet, out of the stomach of one Bustard. In default of insect food, it will eat fruit of various kinds, especially the fruit of the *Byr* (*Zizyphus jujuba*) and *Caronda* (*Carissa carandas*); grain, and other seeds and vegetable shoots.

The Bustard is polygamous, and at the breeding season, which varies very greatly according to the district, from October to March, the male struts about on some eminence, puffing out the feathers of his neck and throat, expanding his tail, and ruffling his wings, uttering now and then a low deep moaning call heard a

great way off. The female lays one or two eggs of a dark olive green, faintly blotched with dusky. I have killed the young, half-grown, in March, near Saugor.

The Bustard has another call heard not unfrequently, compared by some to a bark or a bellow; chiefly heard, however, when the bird is alarmed. This is compared by the natives to the word *hook*, hence the name of *hookna*, by which it is known to the villagers about Gwalior. When raised, it generally takes a long flight, sometimes three or four miles, with a steady, continued flapping of its wings, at no great height above the ground, and I never found that it had any difficulty in rising, not even requiring to run one step, as I have many times had occasion to observe when flushing them in long grass or wheat fields. On the open bare plains, it will sometimes run a step or two before mounting into the air. A writer in the *Bengal Sporting Magazine* asserts that he has known the Bustard ridden down, and that after two or three flights it is so exhausted as to allow of its capture. I imagine that a healthy bird would tire out the best horse and rider before giving in.

At times a single Cock-bustard can be very easily stalked so as to get within distance of a fair shot, 50 or 60 yards, or even nearer, by rapidly moving obliquely towards them, as mentioned previously when speaking of Sand-grouse; when several are together they are more wary, but even then can often be approached within one hundred yards. If there is any bushy or uneven ground to favor the gunner, the task is comparatively easy. Occasionally they may be flushed in long grass, or Dhal fields, or even Wheat fields, and an easy shot obtained; and I once brought down two birds, right and left, in a wheat-field near Saugor.

Many sportsmen kill it with the rifle, and one sportsman on the Bombay side is known to have killed above one thousand Bustards with his rifle; chiefly, I believe, in the Deccan and Southern Mahratta country. A young Bustard, or a full grown hen bird are very excellent eating; the flesh is dark, and very highly flavored; but in an adult cock it is rather coarse.

A large Bustard has been seen in various parts of China which is perhaps this species, or some closely allied one, may-be, *Otis*

lucionensis. A very closely allied species, *O. australis*, Gray, occurs in Australia, where known, to some of the Colonists as the Wild Turkey. Other species are *Eup. nuba*, Rüpp; *E. ludwigi*, Rüpp; *E. caffra*, Licht. (*Stanleyi*, Gray); *E. Denhami*, Children; *E. arabs*, L. (*abyssinica*, Gray); and *E. kori*, Burchell.

The European Bustard, *O. tarda*, Linnæus, belongs to restricted *Otis*. It has a long white moustachial-tuft. The short limbs, short bill, and general form give it quite a different aspect to that of the Indian Bustard, and I can understand its being called a Turkey. It is found throughout Eastern Europe and Central Asia, and used to be occasionally captured in England; and its peculiar attitudes during the courting season have been ably illustrated by Wolf in his Zoological Sketches.

Gen. HOUBARA, Bonaparte.

Syn. *Chlamydotis*, Lesson.

Char.—Legs rather short; neck of the male furnished with a ruff, and occasionally crested; bill rather lengthened, much depressed at the base.

The ruffed Bustards are birds of moderate size, frequenting the open sandy deserts, the type of which is *Otis houbara* of Gmelin, from Northern Africa, which occasionally passes over into Spain. One species is found in the North-western Provinces of India.

39. *Houbara Macqueenii*, GRAY.

Otis, apud GRAY—HARDWICKE Ill. Ind. Zool.—GOULD, Birds of Asia, pt. 111, pl. 8—*O. marmorata*, GRAY, HARDWICKE, Ill. Ind. Zool. 1, pl. 60 (the female)—*Tilaor*, H.—*Obarra* in the Western Punjab—Hurriana Florikin of Sportsmen in the N. W. P.—figured in *Bengal Sporting Magazine*, 1833.

THE INDIAN HOUBARA BUSTARD.

Descr.—Male, head beautifully crested, the crest consisting of a series of lengthened slender feathers in the centre of the crown, white with a black tip in front, wholly white behind; upper plumage, including the neck, pale buff, somewhat albescent on the

wing-coverts and deeper on the back; upper tail-coverts and tail all delicately and minutely pencilled with black, and each feather with a sub-terminal black band visible externally, and another at the base of the feathers; upper tail-coverts with the black bands narrower, distant, and more or less ashy; tail banded with bluish-ashy, and all the lateral feathers broadly tipped with creamy white; greater wing-coverts tipped with white; primaries white at their base, black for the terminal half, and most so on the outer web; lesser wing-coverts and scapulars more or less spotted with black, not barred; the shorter quills and the winglet black, the former tipped with white; the cheeks are white, with black shafts and tips; the throat white; neck fulvous ashy; belly and lower parts, including the lower surface of the wings, white; under tail-coverts slightly barred; the neck-ruff in its full integrity during the breeding season begins from the ear-coverts, the feathers are moderately long, about 2 inches, and entirely black and silky; on the sides of the neck they are at least 6 inches long, white at the base and with black tips; and, where they terminate are still longer, wholly white, varying in texture and with more or less disunited webs, very fine and curving downwards below.

Bill horny slate-color; irides bright yellow; legs greenish-yellow. Length 25 to 30 inches; extent 4 feet; wing 14 to 15 inches; tail 9 to 10; tarsus $3\frac{1}{2}$; bill at front $1\frac{1}{2}$. Weight $3\frac{1}{2}$ to $3\frac{1}{2}$ lbs. (Adams states the iris to be black, and the sclerotic yellow.)

The male in non-breeding or winter plumage, appears to want the fine crest, and in some, apparently, the greater part of the ruff, as in the one figured in Hardwicke's Illustrations. A figure among Burnes' drawings represents the male bird with his coronal crest, but having the upper portion only of the neck-ruff, which forms a conspicuous ear-tuft as in the *Likh Florikin*, but of ordinary shaped feathers. Can the ruff also be a seasonal ornament of the Cock-bird? This is not alluded to in any of the notices of the Indian *Houbara* that I have seen, but is not unlikely.

The female is said, by the writer of the article in the *Bengal Sporting Magazine* alluded to above, to resemble the male; and a specimen, supposed to be that of a female killed at Hansi, agreed,

says Mr. Blyth, "very well with Hardwicke's figure, except that the mottled black patches on the upper parts are smaller, and more numerous, and scarcely appear on the wings which should have been colored paler; the pencilling in front of the neck is very delicate; the tail is banded with light ashy (appearing blue) slightly bordered with black. The coronal feathers are all, in the mass, considerably lengthened, there is no indication whatever of the medial crest; the lower third of the lateral neck-tufts are white, but the front of the neck, below the dull white throat, is uniform pale buff, minutely freckled with black, and at its base are some lengthened plumes of a pale ash color impending the breast."

Another specimen agrees nearly with the Hansi bird, but has a slight crest, or apparently the remains of a crest in process of being shed, confined to the forehead only, and there are but few traces of white upon the black or upper tuft of lateral neck plumes. Mr. Blyth is inclined to regard the crest as a distinctive characteristic of the breeding season only, when it would probably be more developed in the male than in the female.

I am strongly inclined to think that *O. marmorata*, Gray, in Hardwicke's Illustrations, is intended for the female in ordinary attire. It has generally been considered as the female of *Sypheotides bengalensis*, but the whole style of the markings is that of the Houbara rather than of the Florikin. The only difference is that the white of the wing is not shown; but, on the other side, the primaries of the hen Florikin are black. It may, indeed, be a young Houbara.

According to Captain Boys the female assumes the ruff in the breeding plumage but not the crest; but so few observations have been recorded about this bird, that it is yet possible (and probable from analogy) that the hen bird possesses neither crest nor ruff. The female of the African Houbara, according to Temminck, has neither crest nor ruff. The figure among Burnes' drawings may be that of a young male in his first breeding season before the ruff had been fully developed; and in this drawing and that of *marmorata*, the irides of both are represented as vinous red, whilst that of the adult is said to be yellow. This bird is so exceedingly similar to the African Houbara (*H. undulata*)

that I consider them to be doubtfully distinct, but Gould and other late writers still separate them, the black on the crest of the Indian bird being one of the chief distinctions.

The Indian Houbara is found throughout the plains of the Punjab and Upper Sindh, occasionally crossing the Sutlej and the Indus lower down, and it has been killed at Ferozepore, Hansi, and in various parts of Hurriana, but no records exist of its occurrence eastwards of Delhi. It is probably a permanent resident, as no notice is given of its occurring at any particular season. It frequents open sandy and grassy plains, or undulating sandy ground with scattered tufts of grass, also wheat and other grain fields; and is generally met with in such bare and open ground that, being shy and wary, it is approached with difficulty, except in the heat of the day, when it lies down in a thick tuft, or other shelter, and can be approached with ease. Major James Sherwill informed me that it is very abundant across the Indus at Derajat and towards the frontier of Sindh; and that a black hawk which hunts in pairs often kills a wounded bird, and has been seen to strike a sound one. The Houbara is much hawked both in the Punjab and Sindh, and the Falcon exclusively used for this purpose is the *Charragh* (*Falco sacer*, vol. 1, p. 30). It occasionally baffles the Falcon by ejecting a horribly stinking fluid which besmears and spoils the plumage of the hawk; just as, in Africa, its congener is stated to behave towards the *Sakr* falcon. Adams states that it is very destructive to young wheat fields in winter, eating the young shoots, but its chief food is doubtless insects of various kinds. The flesh is said to be exceedingly tender, and is often so loaded with fat, that skins are with difficulty dried and preserved.

This species is common in the bare stony plains of Afghanistan, where it is stated to occur in packs of five or six together, to fly heavily, and for a short distance only, soon alighting and running, and is there called *Dugdaor*. It also occurs in various other parts of Asia, in Mesopotamia and elsewhere; it has been occasionally killed in Europe, and one specimen was shot in England in Lincolnshire, which had its craw filled with caterpillars, snails, and beetles.

The egg of this species procured in Mesopotamia, is figured in a late volume of the Illustrated Proceedings of the Zoological Society. It is of the usual color. *H. unilata*, the Houbara of Northern Africa and Arabia, is often killed in Spain, and is said to be a great delicacy. *O. ruficrista*, A. Smith, perhaps belongs to this genus.

Gen. SYPHEOTIDES, Lesson.

Syn. *Comatitis*, Reichenbach.

Char.—Bill moderately long and broadish; legs lengthened, with a large portion of the tibia bare; in nuptial plumage the male with more or less white wings, and mostly black plumage, highly crested or with ear-tufts, and, in some, the breast plumes greatly developed. Females larger than the males.

This genus comprises the large Florikin of Bengal, and the lesser Florikin of Southern India, called the *Likh* or *Leek* in the North. In both of these species, the hen bird undergoes no change of colour at the vernal moult, but is considerably the larger and heavier bird; whilst the cock changes to nearly all black, and a crest or ear-tuft is developed. The down at the base of the body-feathers is a beautiful rosy-pink colour, and these are very loosely set, coming off very readily.

40. *Sypheotides bengalensis*, GMELIN.

Otis, apud GMELIN—BLYTH, Cat 1540—*O. deliciosa*, GRAY—HARDWICKE, Ill. Ind. Zool. 1, pl. 61 and 62—*O. Himalayana*, VIGORS—GOULD, Cent. Him. Birds, pl. 73,74,75—*Charras*, or *Charaj*, or *Charaz*, H.—called *Dabar* in the Nepal Terai.

THE BENGAL FLORIKIN.

Descr.—Male, in full breeding dress, has the whole head, which is very fully crested, neck, breast, and lower parts, with the thigh-coverts, deep glossy black; the plumes of the breast elongated, forming a full breast-tuft, and the feathers of the neck in front also lengthened; the back, with the scapulars and the tertiaries, rump, and upper tail-coverts, rich olive buff, closely and minutely mottled with jet black zig-zag markings, and a black dash in the centre of each feather; shoulders, wing-coverts, and quills, pure

white, with the tips, shafts, and outer edges of the first three primaries only black; tail black, minutely mottled with buff, and with a broad white tip.

Bill dusky above, yellowish beneath; irides brown; legs dingy pale yellowish; the knee-joint and the toes livid blue. Length 24 to 27 inches; extent 44 to 47; wing 14; tail 7; tarsus 6; bill at front $1\frac{1}{4}$; weight $3\frac{1}{2}$ lbs.

The female has the head (which is moderately crested), and the whole upper plumage pale fulvous, with black and brown mottlings, barrings and vermiculations; the ear-coverts are whitish, and the neck is minutely dotted with dark lines; the primaries are banded dark brown and fulvous. Irides dull yellow; legs dirty yellow. Length 28 to 29 inches; extent 50. Weight 4 lbs.

Young birds are probably at first colored like the females. Males, in winter dress, (perhaps only the younger birds,) have the head, neck, and wing-coverts as in the female, the primaries white, and more or less of the lower plumage black, as in one of Gould's figures. Many birds in this state of plumage are killed during the cold weather and even as late as July. I think it doubtful if young males assume this plumage the first year, and I am inclined to consider that it is the winter dress of all except, perhaps, very old males. Perhaps males of the previous year do not assume the full breeding dress at the first spring moult; and it is possible that older birds may always retain it more or less, for in February I have shot Cock-birds with the whole head and neck black, but the crest and pectoral plumes not developed, and the feathers of the neck thin and short. Hodgson indeed asserts that the Cock bird always retains his fully adult livery, but that the crest and breast-hackles, in their most entire fulness, are only assumed as a nuptial dress. I have not myself had sufficient opportunities to decide on this point; but, judging from the analogy of the Likh Florikin, I would be inclined to think that all, except perhaps very old birds, do lose part of this black plumage on the neck and wing-coverts in an autumn moult; but that they assume this somewhat irregularly in point of time. In these imperfectly colored birds, too, the back, upper tail-coverts, and tail are lighter, with less black, and more of a fulvous hue with brown markings.

Hodgson says that the sexes are equal in size. I have measured and weighed many lately, and invariably found the difference nearly as great as that mentioned above, and the difference of colour in the irides of the two sexes is apparently constant. Analogy with the Likh Florikin would also suggest the inferiority in size of the male bird, which is, however, more marked in that species.

This fine bird is found throughout Lower Bengal north of the Ganges, extending to the south bank above the junction of the Jumna, and thence spreading through the valley of the Jumna into Rajpootana, the Cis-Sutlej States, and parts of the Punjab; in the east it occurs in Dacca, Tipperah, Sylhet and Assam, and northwards to the foot of the Himalayas. It frequents large tracts of moderately high grass, whether interspersed with bushes or otherwise, grass churrs on rivers, and occasionally cultivation, but it appears to be very capricious in its choice of ground, several often congregating in some spots to the exclusion of others that seemed equally favorable for it. From February to April it may be seen stalking about the thin grass early in the morning, and it is noticed to be often found about newly burnt patches; or one or more may be noticed winging their way to some cultivated spot, a Pea-field, or Mustard field, to make its morning repast; after which it flies back to some thicker patch of grass to rest during the heat of the day. Birds, at this time, as well as during the earlier part of the year, are usually found singly, sometimes in pairs, male and female not far distant from each other; or, as stated previously, three or four will be found in some favored spot.

According to Hodgson, the Florikin is neither monogamous, nor polygamous, but the sexes live apart at no great distance; and this appears to be very probable. The Florikin breeds from June to August. At this season the Cock-bird may be seen rising perpendicularly into the air with a hurried flapping of his wings, occasionally stopping for a second or two, and then rising still higher, raising his crest at the same time, and puffing out the feathers of his neck and breast, and afterwards dropping down to the ground, and he repeats this manœuvre several times successively, humming, as Hodgson asserts, in a peculiar tone. Such females as

happen to be near, obey this saltatory summons; and, according to Hodgson, when a female approaches, he trails his wings, raises and spreads his tail, humming all the while like a Turkey-Cock. I have seen the cock-bird performing this nuptial dance repeatedly, but have not witnessed the subsequent ceremonials, which, however, are likely enough.

At this time the hen Florikin is generally to be found in lower ground and thicker grass, and is flushed with difficulty, running far, and almost allowing herself to be walked over. She lays from two to four eggs in some sequestered spot, well concealed in the grass, of a dull olivaceous tint, more or less blotched and coloured with dusky. Hodgson calls them sordid stramineous, minutely dotted and more largely blotched and clouded with black; he also states that the young remain with their mother for nearly a year; but I look on this as doubtful. Two females are said not unfrequently to breed near each other.

The flight of the Florikin is a steady, flapping flight, of no great speed, and it seldom flies very far before alighting. It is occasionally hawked with the *Baz* and *Bhyree*. It feeds chiefly on insect food, grasshoppers, beetles, and caterpillars, but will also eat small lizards, snakes, centipedes, &c.; and Hodgson says, sprouts and seeds of various plants, and that their diet is chiefly vegetable. This, however, is opposed both to my own experience, and the analogy of the other members of this family. It occasionally, however, does eat sprouts and flowers of certain plants, but whether from choice, or taken in along with some grasshopper or beetle, I cannot say.

When feeding, or on bare ground, the Florikin is shy and wary, and will often rise at some distance, but sooner or later takes refuge in a thicker patch, and may be approached with ease; or it will elude the gunner altogether by running to some distance, or squatting. In the heat of the day it is generally flushed pretty close, even when the sportsman is on an elephant. In general, it is a silent bird, but if suddenly startled, will rise with a shrill metallic *chik-chik*, occasionally repeated during its flight. The Florikin is highly esteemed for the table, being considered by some the most delicious game in the country; the flesh is brown without, with a

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layer of white within, juicy, and of a very high flavour. In some districts it is eagerly sought for by sportsmen, but is most frequently, perhaps, seen when tiger or large game are being hunted for with a long line of elephants, and consequently many escape being fired at. The churrs of the Burhampooter river are said especially to abound with Florikin, even to Upper Assam. Parts of Rungpore, Purneah, and Goruckpore, all afford fair Florikin shooting, as do many portions of the N. W. Provinces, from Delhi to Rohilcund and Oude.

41. *Sypheotides auritus*, LATHAM.

Otis, apud LATHAM—JARD. and SELBY, Ill. Orn., pl. 40, 92—Belanger, Voy. aux Ind. Orient. Zool., pl. 10—JERDON, Ill. Ind. Orn. pl. 33.—BLYTH, Cat. 1542—O. fulva, SYKES, Cat. 167—JERDON, Cat. 282—*Charaz* or *Charas*, H. in the South of India—*Chulla charz*, H. in some parts—*Likh*, H. in Hindoostan—*Tan-mor*, Mahr.—*Kan-noul*, Can.—*Niala nimili*, Tel., the last three names signifying Ground pea-fowl—*Wurragu koli*, Tam.—*Khartitar*, of the Bheels near Mhow, i. e., Grass-partridge—vulgo, *Ghas ka murghi*, or Grass Fowl.

THE LESSER FLORIKIN.

Descr.—Male in full breeding plumage, with the head, neck, ear-tufts, medial wing-coverts, and the whole lower plumage deep black, the chin alone being white; lower part of the hind neck and a large patch on the wing white, the rest of the plumage fulvous, beautifully and closely mottled with dark brown; the first three primaries plain dusky brown, the remainder both barred and mottled with brown. The down at the base of all the feathers is a beautiful pale dull rose-colour, and the quills, when freshly moulted, have a beautiful bloom, mingled pink and green, which, however, soon fades. The ear-tufts are about 4 inches long, and have usually three feathers on each side, with the shaft bare, and a small oval web at the tip, curving upwards. The primaries are much acuminate, sometimes ending in a point almost as fine as a needle.

Bill dusky above, the edges of the upper, and all the lower mandible yellowish; irides pale yellow, clouded with dusky; legs

dirty whitish yellow. Length 18 to 19 inches; wing 8; tail 4; bill at front $1\frac{5}{10}$; tarsus barely 4. Weight 16 to 18 ozs.

The female has the prevalent tone of her plumage pale fulvous-yellow, the feathers of the head, back, wings, and tail, clouded and barred with deep brown, those on the head mostly brown; the fore-neck with two irregular interrupted streaks, increasing on the lower neck and breast, the lower plumage thence being unspotted and albescent; the hind neck is finely speckled with brown; the chin and throat white; the first three primaries, as in the male, unspotted brown; wing-coverts with only a few bars; axillaries brown.

Bill, legs, and irides as in the male, but the irides generally unclouded yellow. Length 19 to 21 inches; wing $9\frac{1}{2}$; tail nearly 5; bill at front $1\frac{1}{2}$; tarsus $4\frac{1}{2}$. Weight 20 to 24 ozs.

The male, in winter dress, closely resembles the female, but has always some white on the shoulder of the wing; and some of the wing-coverts also partially white; the under wing-coverts being dark brown, whilst in the female they are fulvous. Of course during the vernal and autumnal moults, male birds with every gradation of colour will be met with, and some of these are figured in the *Bengal Sporting Magazine*, and in *Belanger's Voyage*. The difference between the size of the male and female is much more marked in this species than in the last.

Franklin and Sykes having, in their respective Catalogues, pronounced the common Florikin of Central and Southern India distinct from the Black Florikin, I entered at some length in my Catalogue, and also in my Illustrations, into this subject, and from the latter work I extract the following observations:—

“My reasons for believing the Black and the common Florikin to be one and the same bird, may be here briefly recapitulated.

1stly. “All *Black Florikin* hitherto examined have been male birds.

2ndly. “The *Black Florikin* agrees exactly in size, and comparative dimensions, with the male of the *common Florikin*, as described fully by Colonel Sykes, but more especially in the length of wing, and acumination of the primary quills, the points insisted on by him, and most correctly so, as the essential points of difference from the female.

3rdly. "Some black feathers are in general to be found on every Cock-bird, not however always noticeable till the feathers of the abdomen are pulled aside; and this mottling with black varies from a feather or two to so many that the bird would be considered by sportsmen a *Black Florikin*.

4thly. "I have watched the progressive change in birds at Jalnah, where a few couple always remain and breed, from the garb of the female to the perfect *Black Florikin*, and back again from this the nuptial plumage, to the more sober livery of the rest of the year.

5thly. "I have seen more than one specimen of the cock-bird in the usual grey plumage, which, from some cause or other, had not as usual dropped the long ear-feathers, but these had, in conformity with the change in the system causing this alteration of plumage, become white.

"These reasons will, I trust, be considered sufficient to convince the most sceptical sportsmen of the identity of the common and *Black Florikin*. Other testimony might be brought forward in support, but I shall only cite that of Lieut. Foljambes, in a brief paper in the Journal of the Asiatic Society of Bengal, who, from observations in Guzerat, where they appear very numerous, states it as his belief that they are the same bird, but that the Black one is only met with in Guzerat during the monsoon, which, as we shall soon see, is the breeding season."

The Leek or Lesser Florikin is found throughout India, from near the foot of the Himalayas to the Southernmost districts, but has not, I believe, been seen in Ceylon. It is more rare in Northern India and Bengal, but has been killed even in Arrakan. It is most abundant in Central and Western India during the rains, and in Southern India in the cold weather, whilst those that have occurred in Bengal and neighbouring districts have chiefly been seen in the hot weather or commencement of the rains. I saw it on the banks of the Ganges in April and May, and know of its having been occasionally killed in Purneah in May and June. In the Carnatic, Mysore, the Deccan, and Northern Circars, it is chiefly found in the cold weather, from October to February and March; and in the westernmost portion of Central India and Western India, Guzerat, the neighbourhood of Malwah

and Indore, and the southernmost portion of Rajpootana, chiefly during the rains, from June to September. The few that I saw in Saugor and the neighbouring country, occurred during the hot weather, at which time they leave the dried-up districts of Southern India, and migrate north in search of suitable shelter and food. As great part of the eastern portion of Central India, from the Godavery to Midnapore and Chota Nagpore, consists more or less of forest and jungles, the majority are drawn westwards into Malwah, Rajpootana, and Guzerat. Few occur in Malabar, but in Southern Canara there is at least one locality where they may be found in the cold weather.

"The lesser *Florikin* frequents long grass in preference to any other shelter. It is, however, often to be met with in grain fields, in fields of Cotton and Dholl, and in the Carnatic so much in those of the grain called *Warragoo*, as to be called in Tamool *Warragoo kolee*, or *Warragoo Fowl*. It feeds chiefly in the morning, and is then easily raised, but during the heat of the day it lies very close, and is often flushed with difficulty. I have known an instance of one being killed by a horse stepping on it. Now and then an exceedingly wary one is met with, which runs to a great distance, and takes wing well out of shot. When walking or running it raises its tail, as is represented on the drawing, the lateral feathers diverging downwards, whilst those of the centre are the most elevated, as is seen in domestic fowls, &c., forming what Swainson calls an *erect* or compressed tail. The chief food of the *Florikin* is grasshoppers. I have found also blister beetles, (*Mylabris*) *Scarabæi*, centipedes, and even small lizards. When flushed suddenly it utters a kind of sharp 'quirk,' or note of alarm, and it is said also to have a feeble plaintive chirp or piping note, when running or feeding. Its flesh is very delicate, and of excellent flavour, and it is the most esteemed here, of all the game birds. Its pursuit is consequently a favorite sport, and from the open nature of the ground it frequents, it is well adapted for being hawked. I have killed it occasionally with the *Luggur*, but generally with the *Shaheen*, and have already given an account of the manner of hunting it. Should the *Shaheen*, miss her first stoop, I have seen the *Florikin* accelerate its speed so

greatly, that the falcon was unable to come up with it again under 600 yards or so. I have seen one struck dead by the *Wokhab*, *Aquila Vindhiana*; I had slipped a *Luggur* at it, which was in hot pursuit, though at some little distance behind, when two of these Eagles came down from a vast height, and joined in the chase. One of them made a headlong swoop at it, which the *Florikin* most skilfully avoided, only however to fall a victim to the talons of the other, which stooped almost immediately after its confederate, and dashed the poor bird lifeless to the ground. It had not, however, time to pick it up, for I rode up, and the Eagles soared off most unwillingly, and circled in the air long above me. The *Florikin* had its back laid open the whole length."*

A few birds appear to breed in all parts of Southern India, from July to November, for I have put the hen bird off her nest in August in the Deccan, and in October near Trichinopoly; and have heard of the hen having been found incubating still later, up to January indeed; but the majority breed, in Guzerat, Malwa and Southern Rajpootana, from July to September. I have found the cock-bird commencing to assume the black plumage at the end of April, and have killed them with the black ear-tuft just beginning to sprout, hardly any other black feathers having appeared. In other instances I have noticed that these ear-tufts did not make their appearance till the bird was quite mottled with black. The full and perfect breeding plumage is generally completed during July and August. At this season the male bird generally takes up a position on some rising ground, from which it wanders but little, for many days even; and during the morning especially, but in cloudy weather at all times of the day, every now and then rises a few feet perpendicularly into the air, uttering at the same time a peculiar low croaking call, more like that of a frog or cricket than that of a bird, and then drops down again. This is probably intended to attract the females, who, before their eggs are laid, wander greatly; or perhaps to summon a rival cock, for I have seen two in such desperate fight as to allow me to approach within thirty yards before they ceased their battle.

* Jerdon's Ill. Ind. Orn. I c.

The female lays her eggs in some thick patch of grass, four or five in number, (one writer says seven,) of a dark olive colour, with or without a few darker blotches, of a very thick stunted, ovoid form, very obtuse at the larger end. During this season the females are very shy and wary, seldom rising, though often running great distances; and when closely approached and unable to run further, perhaps, without being seen, squatting so close as to allow a man or dog almost to tread on them before they take flight.

I have never put up or taken a young Florikin. Soon after incubation has fairly commenced, the cock-birds appear to leave the breeding district, and gradually migrate southwards. At Trichinopoly, about the end of September and beginning of October, the birds first met with are all cock-birds, generally in pretty fair plumage, but very rapidly assuming their more sober winter garb; and females are very rare till much later in the season.

The Lesser Florikin is occasionally snared and brought in alive by some bird-catchers, but the gun is had resort to in general to procure it. It is invariably called *Charraz* by all Mussulmans in Southern India, although Mr. Hodgson asserts that I had no right to apply that name to it, and I have not yet learnt in what particular districts it is called *Likk*; most probably in the N. W. Provinces. I have not been able to trace the origin of the Anglo-Indian word '*Florikin*,' but was once informed that the little Bustard of Europe was sometimes called *Flanderkin*. Latham gives the word '*Flercher*' as an English name, and this, apparently, has the same origin as Florikin.

The small Bustard of Europe, *Otis tetrox*, L., now classed as *Tetrao campestris*, is stated to have occurred in the Peshawur valley; but as I have not seen a specimen from that locality, nor heard of one having been examined, I shall only give a brief description of the species here, without enumerating it as one of the 'Birds of India.' The bill and legs are short, the male has the usual mottled brown plumage above, the wing-coverts and the base of the primaries white, the rest of the primaries greyish-black, and the secondaries patched black and white; the tail with two dark cross-bars, and the tip and base white; cheeks, ear-coverts, and neck bluish-grey, edged with black, and below this a white ring in the

form of a necklace all round the neck. Length 17 inches; wing $9\frac{1}{2}$. The female has less white than the male; wants the white ring, and the neck is coloured like the back. In winter the males are said to resemble females. This small Bustard, or what in India would be called a Florikin, occurs throughout Central and Western Asia, and North Africa, and is said at times to be gregarious. It is stated to frequent open plains, and to feed chiefly on vegetable matter.

Africa appears to be the Head Quarters of the Bustard family, and there are several forms peculiar to that Continent, whence some spread into Arabia. *Otis rhaad*, Shaw, *O. cærulescens*, Vieill., (*Verrauxii*, A. Smith), and *O. scolopacea*, Temminck, (*Vigorsii*, Smith), are classed by Bonaparte under *Trachelotis*, Reichenbach; and *O. afra*, Linn., and *O. afroides*, Smith, are placed under *Afrotis*, Bonaparte. The last two Bustards (if really distinct from each other) have quite the coloration of the *Sypheotides* group; and the same remark applies to *O. rhaad*.

Otis senegalensis, Vieillot., (*rhaad* apud Rüppell) and *O. melanogaster*, Rüppell, are placed under *Lissotis*, Reich. The latter also has much the plumage of a *Sypheotides* in non-breeding dress. Perhaps, from a want of knowledge of the changes of plumage of these birds, some of the above species will require to be withdrawn.

Tribe LONGIROSTRES, Cuvier.

Bill more or less lengthened, slender, and feeble; wings usually long and pointed; tail short; tarsus moderately long; toes moderate, the exterior one generally joined to the middle toe by a short web, and the hallux short and raised, absent in a very few.

This tribe contains a number of generally small wading birds, classed by Linnæus in *Scolopax* and *Tringa*, and many closely resembling each other in colour and conformation. Most have a double moult, and the change of plumage is considerable in many. All are migratory, and several associate in winter in large flocks; others are more or less solitary. They feed on small molluscs, worms, and crustacea, for which they bore in the soft mud of rivers, lakes, or marshes; and the bill of some is peculiarly sensitive at the tip. They nidificate on the ground, laying usually

four somewhat conical eggs, coloured something like those of the Plovers, and the young run as soon as they leave the shell.

The sternum has a double emargination, the outermost the largest, and the keel is high; the bony orbit is very deficient. The stomach is a muscular gizzard, and the intestines are long, with small or moderate cæca. The females are, in many cases, larger than the males; in a very few, the males are much larger than the females, and, in these cases, are polygamous.

They are very closely related to the Plovers in structure and internal anatomy, but differ in their more lengthened bill, slender form, more aquatic habits, and mode of colouration.

The *Longirostres* comprise one large family, the *Scolopacidæ*, and a very small group, differing from them only in external conformation and colour, the *Himantopidæ*; these last may be said to bear the same relation to the rest of the tribe, that the Seaplovers (*Hæmatopodidæ*) do to the other Plovers, and to which, indeed, these birds have a general similarity of colour.

Fam. SCOLOPACIDÆ.

Bill typically long; slender, in many somewhat soft towards the tip, in others hard throughout; wings lengthened, as are the tertials; tail short; tarsus moderately long; toes slightly united by a very short web. Plumage brown, of various shades above, white, more or less tinged brown, or ashy beneath.

The Snipes and Sand-pipers form a continued series, graduating into each other, with various modifications of the bill, as to length, strength, hardness, and form. The bill is short in some, as in *Tringa*; curved in the Curlews; somewhat turned upwards in *Limosa* and *Terekia*; soft in the Snipes, moderately hard in *Totanus*. They may be divided, according to these modifications, (and in one case from the structure of the feet), into *Scolopacinæ*, True Snipes; *Limosinæ*, Godwits; *Numeninæ*, Curlews; *Tringinæ*, Stints; *Phalaropinæ*, and *Totaninæ*, Phalaropes; Sand-pipers.

Sub-fam. SCOLOPACINÆ, Snipes.

Bill long, straight, rather soft, swollen at the tip, which is gently bent over the lower mandible; tarsus rather short; tail varying in the number of feathers.

The Snipes have the richest plumage of the family, the dorsals and scapular feathers being often streaked with black and yellow. Their bills are highly sensitive and soft at the tip, and in drying, shrivel up so as to appear punctured. They feed on worms and soft larvæ, are chiefly nocturnal in their habits, and have large eyes set far backwards, giving them a peculiar physiognomy. They mostly affect concealment, and some of them even frequent woods.

Gen. *SCOLOPAX*, Linn. (as restricted.)

Syn. *Rusticola*, Vieillot.

Char.—Bill long, thin, more or less rounded, of soft texture, swollen at the tip, and obtuse; upper mandible channeled for the greater part of its length, slightly bent downwards at the tip; lower mandible channeled only to the middle; nostrils basal, longitudinal; wings moderately long, very pointed, 1st quill longest; tail short, of twelve soft uniform feathers; tibia plumed to the joint; toes free to the base; tarsus short, stout; hind toe short.

This genus, now restricted to the true Wood-cocks, differs from the Snipe chiefly by the tibia being feathered to the knee. It comprises birds of larger size and stouter make than the Snipes, and perfectly sylvan in their habits, as the English name implies. The humerus is stated to be without air-cells.

42. *Scolopax rusticola*, LINNÆUS.

JERDON, Cat. 335—BLYTH, Cat. 1605—*S. indicus*, HODGSON.
—GOULD, Birds of Europe, pl. 319—*Sim-titar*, or *Tutatar*, H. of some.—*Sim-Kukra* in Kumaon.

THE WOOD-COCK.

Descr.—Forehead and crown ash-grey, tinged rufous; a dusky streak from gape to eyes; occiput, with four broad transverse bars of blackish brown; the rest of the upper part variegated with chesnut brown, ochre-yellow, and ash-grey, with zigzag lines and irregular spots of black; throat white; rest of under parts yellowish white, passing into rufous on the breast and forepart of neck with cross wavy bars of dusky brown; quills barred ferruginous and black; tail black, the outer webs edged rufous, tips ash-grey above, silvery white beneath; bill fleshy grey; legs livid; irides dark brown.

Length 14 to nearly 16 inches; wing 8 to $8\frac{1}{2}$; tail $3\frac{1}{2}$. Bill (front) 3 to $3\frac{2}{10}$; tarsus $1\frac{1}{2}$ to $1\frac{8}{10}$; extent of wing 24 to 26 inches; mid-toe $1\frac{1}{2}$. Average weight 9 to 10 ounces, varies from 7 to 14 ounces and more. The female is larger, with the colours more dull. The wings reach to about $1\frac{1}{2}$ inches from the end of the tail.

The Wood-cock is a winter visitant to the more elevated wooded regions of India, the Himalayas, the Neilgherries, the Pulneys, Shervaroys, Coorg, and doubtless all the higher ranges of Southern India. During its periodical migrations north and south, individuals are occasionally killed in various parts of the country. Several were procured in the Calcutta market by Mr. Blyth; I have heard of its having been at least once obtained in the Madras market; and various other instances of its having been procured in different parts of the country have come to my knowledge, viz., at Chittagong, Berhampore, Noacolly, Tipperah, Dacca, Masulipatam, &c. The Wood-cock is late in arriving, generally not appearing before the middle of October, and usually later; it leaves in February. It frequents damp woods, especially if there is a stream running through, or boggy and swampy spots either in the wood or just at the edge, and the holes made by its bill when probing the soft soil for worms, may often be noticed, if carefully looked for. On the Himalayas, in general, it is difficult to procure, owing to the extent of the woods and the steepness of the ground; but on the Neilgherries and other hill ranges of Southern India, the woods are small, well defined, and easily beaten by men and dogs, and Wood-cock shooting is a favorite pastime with sportsmen. I have killed 8 in a forenoon, and have known 16 and 20 killed by two or three guns. In Coorg, where the woods are very extensive, the sportsman walks up some likely-looking wet nullah, with one or two men on each side, and gets a snap shot now and then. Mountaineer states that they breed in the hills near the snows, in considerable numbers. At this season they are seen towards dusk, about the open glades and borders of the forest on the higher ridges, flying rather high in the air, in various directions, and uttering a loud wailing cry. Major Walter Sherwill observed the same in the interior of Sikim.

The only other true Wood-cocks are *S. saturata*, Horsfield, from Java; and *S. minor*, Gmelin, (*Americana*, Audub.) separated by Bonaparte as *Rusticola*.

Gen. GALLINAGO, Stephens.

Char.—Tibia bare for a small space above the joint; tail with from 16 to 28 feathers, the outer ones often narrowed; otherwise as in *Scolopax*:

This genus comprises the various Snipes, which differ considerably in the form and structure of the tail, and also slightly in the wings; they have been considerably sub-divided by Bonaparte.

1st. Of rather large size, wings broad, full, and soft; tail of 16 or 18 feathers; the laterals slightly narrowed, Gen. *Nemoricola*, Hodgson and Bonap.

43. *Gallinago nemoricola*, HODGSON.

JERDON, Cat. 336—BLYTH, Cat. 1606—JERDON, Ill. Ind. Orn. pl. 9—*Nemoricola nipalensis*, HODGSON.

THE WOOD SNIPE.

Descr.—Top of the head black, with rufous-yellow longish markings; upper part of back black, the feathers margined with pale rufous-yellow, and often smeared bluish; scapulars the same, some of them with zig-zag markings; long dorsal plumes black with zig-zag marks of rufous grey, as are most of the wing-coverts; winglet and primary-coverts dusky black, faintly edged whitish; quills dusky; lower back and upper tail-coverts barred reddish and dusky; tail with the central feathers black at the base, chesnut with dusky bars towards the tip; laterals dusky with whitish bars; beneath, the chin white, the sides of the neck ashy, smeared with buff and blackish, breast ashy, smeared with buff and obscurely barred; the rest of the lower plumage, with the thigh-coverts, whitish, with numerous dusky bars; lower tail-coverts rufescent, with dusky marks, and the under wing-coverts barred black and whitish.

Bill reddish brown, paler at the base beneath; irides dusky brown; legs plumbeous-green. Length $12\frac{1}{2}$ to 13 inches; extent 18;

wing $5\frac{1}{4}$; tail $2\frac{1}{2}$; bill at front $2\frac{5}{8}$; tarsus $1\frac{1}{4}$; middle toe $1\frac{1}{8}$. Average weight $5\frac{1}{4}$ to 7 oz.

This solitary Snipe or Wood Snipe is found in the Himalayas, the Neilgherries, Coorg, and occasionally in Wynaad and other elevated regions of Southern India and Ceylon; it is also said to occur in considerable numbers in the Saharunpoor district, below Hurdwar, and generally in the extensive swamps at the foot of the Himalayas. It frequents the edges of woods near swamps, and patches of brushwood in swampy ground. It is by no means either common or abundant any where, and on the Neilgherries, but few couples are shot in general in one season. It flies heavily, and having a large expanse of wing, is not unfrequently taken for a Wood-cock. One from the Neilgherries is recorded in the *Bengal Sporting Magazine* for 1833 as having weighed $13\frac{1}{4}$ oz. Was it not a Wood-cock?

2nd. Of large or moderate size; the tail with from 20 to 28 feathers; the laterals (five to ten on each side) highly attenuated and stiff; in some cases increasing gradually in width. Legs and feet slightly smaller. Gen. *Spilura*, Bonap.

44. *Gallinago solitaria*, HODGSON.

J. A. S. VI. 491.—BLYTH, Cat. 1607.

THE HIMALAYAN SOLITARY SNIPE.

Descr.—Head above brown, with pale mesial and superciliary lines; a dark band from the base of the bill gradually lost in the ear-coverts; upper plumage much as in the common Snipe, but the whole of the feathers more spotted and barred with rufous; a conspicuous pale buff stripe along the scapulars and inner edge of the wing; primaries brown, with a narrow pale edging externally, and the innermost tipped with white; secondaries and tertiaries broadly barred with dark brown and pale rufous; tail deep black at the base with a broad subterminal band of bright ashy-rufous, tipped brown, and the extreme tip pale; outermost rectrices finely barred; breast olive-brown with white dashes, or white and brown bars, passing into white on the abdomen and vent, with some olivaceous bands on the upper belly and flanks, and the sides of the vent and under-tail-coverts whitish.

Bill reddish brown; irides dark; feet greenish yellow. Length $12\frac{1}{2}$ inches; extent 20; wing $6\frac{1}{4}$; tail $3\frac{1}{2}$; bill at front $2\frac{1}{4}$; tarsus $1\frac{1}{2}$; middle-toe $1\frac{1}{2}$. Weight $6\frac{1}{2}$ oz.

The Himalayan Solitary Snipe has hitherto only been found in the Himalayas, and no details of its peculiar haunts are recorded. It inhabits thin forests, near swampy ground, and in winter has been killed at from 3,000 to 6,000 feet of elevation. I am not aware if it occurs elsewhere, but it will most probably be found in summer in Thibet and Central Asia; indeed, Bonaparte states that there is a species from Japan which scarcely differs, having 20 to 24 rectrices, the outer ones narrow; it is very probably Swinhoe's *Gallin. megalæ*, from China.

45. *Gallinago stenura*, TEMMINCK.

Scolopax, apud TEMMINCK.—BLYTH, Cat. 1609—*S. gallinago* apud JERDON, Cat. 337 (in part)—*S. heterura*, and *S. biclavus*, HODGSON—*S. Horsfieldii*, GRAY—HARDWICKE, Ill. Ind. Zool. 2, pl. 54.—

THE PIN-TAILED SNIPE.

Descr.—Very similar to the Common Snipe in colour; but the under-wing-coverts and axillaries richly barred with dusky and white.

Of slightly smaller size than the Common Snipe; length 9 to 10 inches; wing $5\frac{1}{2}$; bill barely (in general) $2\frac{1}{2}$ inches; tail 2 to $2\frac{1}{4}$; tarsus and feet slightly shorter.

The Pin-tailed Snipe resembles the Common Snipe so closely that it is very seldom discriminated by sportsmen, and often passed over by the Naturalist. It can, however, be recognised at once by the richly barred lower wing-coverts, by its shorter beak, and most conspicuously by its remarkable tail, the lateral feathers of which are very narrow, rigid, and pointed.

I regret that I have no information of its habits, or of its times of appearance and departure, as distinguished from the Common Snipe.

3rd. With from 14 to 16 tail-feathers, of nearly uniform width; restricted *Gallinago*, Bonap.

46. *Gallinago scolopacinus*, BONAP.

BLYTH, Cat. 1610—*S. gallinago*, LINN.—SYKES, Cat. 197—JERDON, Cat. 337 (in part)—*S. unclavus*, HODGSON—GOULD, Birds of Europe, pl. 321-2,—*S. burka*, LATHAM and BONAPARTE—*Bharka Bharak*, H.—(*Chaha*, *Chahar*, H. in various parts*)—*Soorkhab*, of some Shikaries, i. e., the Sucker of water—*Mukupuredi*, Tel., i. e., the long-billed *Turnix*—*More-ulan*, Tam.—*Chegga*, Beng.

THE COMMON SNIPE.

Descr.—Crown black, divided longitudinally by a yellowish white line; a dusky brown eye-streak, and a yellowish superciliary one; back and scapulars velvet black, crossed with chesnut brown bars, and with longitudinal streaks of ochre-yellow; wing-coverts dusky brown, edged with reddish white; quills blackish; chin and throat white; cheeks, neck, and breast above mottled black and ferruginous; flanks barred white and dusky; the lower part of the breast and abdomen pure white; tail black, with the terminal third red-brown, barred black and tipped whitish; lower wing-coverts white, very faintly barred.

Bill reddish brown, paler at the base; irides deep brown; legs greyish green. Length 11 to 12 inches; extent 17 to 18; wing 5 to 5½, about 1 or 1½ inches shorter than tail; tail 2½; bill at front 2½ to 3; tarsus 1½; middle toe 1½. Weight 3½ to 5 oz.

Both this and the last species of Snipe are very abundant in India during the cold weather, and are not, in general, discriminated by sportsmen. Snipe arrive in the North of India in small numbers early in August, but not in any quantity till the end of September and October. A few are generally found in the Calcutta market early in August, and in the Madras market by the 25th of the same month; the last birds do not leave before the first week of May. In Upper Burmah, where I noticed the very early appearance of the Common Swallow, Snipe come in small numbers towards the middle or latter end of July; but I very much doubt their breeding there, or in the marshes of Bengal, as Adams states that they do. They frequent marshes, inundated

* According to Buchanan, *Chaha* is applied to various small Waders, but not correctly to the Snipe.

paddy fields, rice stubble fields, edges of jheels, tanks, and river-courses, feeding, chiefly at night, on worms and various aquatic insects. Their pursuit is a favorite sport throughout India, and vast numbers are occasionally killed. I have heard of 100 couples having been killed to one gun in the South of India; and sixty or seventy brace is no very uncommon bag for a first-rate shot in some parts of the country. Snipe always rise with a piping call, and fly against the wind; occasionally they alight on bare or ploughed land, and not unfrequently take refuge in some neighbouring low jungle.

Snipe breed in Northern Europe and Asia, laying four eggs yellowish white, spotted with brown, chiefly at the large end. The peculiar humming noise made by some Snipe during their flight at the breeding season, was shown by Meves of Stockholm to depend on the outer tail-feathers; and the noise can be imitated by drawing these feathers attached to a wire rapidly through the air. The particular sound varies in each species according to the structure of the tail.

4th. Tail of 12 uniform feathers; of small size. *Lymnocyptes*, Kaup.

47. *Gallinago gallinula*, LINNÆUS.

SYKES, Cat. 198—JERDON, Cat. 338—BLYTH, Cat. 1611—GOULD, Birds of Europe, pl. 319.

THE JACK SNIPE.

Descr.—Crown divided by a black band slightly edged with reddish brown, extending from the forehead to the nape; beneath this and parallel to it are two streaks of yellowish white, separated by another of black; a dusky line between the gape and the eye; back and scapulars black, glossed with green, and with purple reflections; the scapulars with the outer webs creamy yellow, forming two conspicuous longitudinal bands extending from the shoulders to the tail; quills dusky; wing-coverts black, edged with pale brown and white; throat white; neck in front and upper breast pale yellow brown tinged with ashy, and with dark longitudinal spots; lower breast and belly pure white; tail dusky, edged with pale ferruginous.

Bill bluish at the base, black towards the tip; irides deep brown; legs and feet greenish grey. Length $8\frac{1}{2}$ inches; extent 14; wing $4\frac{1}{2}$; tail not quite 2; bill at front $1\frac{1}{2}$; tarsus 1. Weight $1\frac{1}{4}$ ozs.

The Jack Snipe is generally diffused throughout India, preferring thicker coverts than the Common Snipe, lying very close, and difficult to flush. Now and then considerable numbers will be met with; in other places it is rarely seen. It makes its appearance later than the Common Snipe, and departs earlier, breeding in the Northern parts of Europe and Asia.

Various other Snipes are found all over the world. A group from South America is separated by Bonaparte as *Xylocola*.

Gen. RHYNCHÆA, Cuvier.

Char.—Bill shorter than in *Gallinago*, slightly curved downwards at the tip; wings rather short, broad, slightly rounded, beautifully ocellated, 2nd quill longest, 1st and 3rd sub-equal; tail of 14 or 16 feathers, slightly rounded, short; tarsus long; tibia much denuded.

In this genus the females are not only larger than the males but they are also much more richly colored. It contains three very closely allied species. Blyth considers it to have some affinities for *Eurypyga*, a South American bird of rather large size with ocellated wings, usually placed among the Herons.

48. *Rhynchæa bengalensis*, LINNÆUS.

Scolopax, apud LINNÆUS—SYKES, Cat. 199—JERDON, Cat. 334—BLYTH, Cat. 1612—*R. capensis*, LINN.—*R. picta*, GRAY—*R. orientalis*, HORSFIELD—HARDWICKE, Ill. Ind. Zool.

THE PAINTED SNIPE.

Descr.—Upper plumage more or less olivaceous, the feathers finely marked with zig-zag dark lines, and the scapulars and inner wing-coverts with broad bars of black, edged with white; a median pale buff line on the head, and another behind and round the eye; scapulars with a pale buff stripe as in the Snipe; wing-coverts mottled and barred with pale olive and buff; quills olivaceous grey, with dark, narrow, cross lines, blackish towards the base on the outer web, and with a series of five or more buff ocelli on the outer web; the inner web with white cross bands

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alternating with the ocelli, and gradually changing to buff on the tertials; tail olivaceous grey, with four or five rows of buff ocelli on both webs, and tipped with buff; chin whitish; neck, throat, and breast olivaceous brown, with whitish spots or bars; the lower parts from the breast, white, passing on the sides of the breast towards the shoulder, and becoming continuous with the pale scapular stripe.

The female is darker and plainer coloured above; the wing-coverts and tertials dark olive with narrow black cross lines, the outermost tertiaries white, forming a conspicuous white stripe; lores, sides of the face, and whole neck, deep ferruginous chesnut, gradually changing on the breast into dark olive, almost black beneath, this is bordered on the sides (as in the male) by a pure white line passing up to the scapular region; lower part white, a dark band on the flanks bordering the white ascending line posteriorly.

Bill reddish brown; irides deep brown; legs greenish. Length of the female $9\frac{1}{2}$ inches; wing $5\frac{3}{8}$; tail nearly 2; bill at front $1\frac{1}{2}$; tarsus $1\frac{3}{4}$; mid-toe $1\frac{1}{8}$. The male is a little smaller; length 9; wing $5\frac{1}{4}$.

The African species is generally considered distinct, and is stated to differ in its narrower quills and some slight variations in the coloring of the wings, tail, &c.; I can see no such difference however in a Cape specimen in the Museum of the Asiatic Society, and I note that Gurney in a late paper in the 'Ibis,' pronounces them to be identical. *R. australis*, Gould, from Australia, is also very closely allied, but the female (only) possesses a peculiar conformation of the trachea, which is wanting in the Indian bird, this organ passing down between the skin and the muscles for the whole length of the body, and making four distinct convolutions before entering the lungs. It has shorter toes also than the Indian species. A species from South America, *R. semicollaris*, V. is very distinct.

The Painted Snipe is a permanent resident in some parts of India, breeding in June and July in thick marshy ground, and laying four eggs which are greenish with large brown blotches and very large for the size of the bird. It wanders about a good deal according to the season, and many will be found in paddy fields, in

the south of India, in October and November, leading the observer to conclude that they are as migratory as the true Snipe. I have found them breeding in Malabar, the Deccan, and Bengal ; after the young are fully grown, they disperse over the country.

The Painted Snipe flies heavily and but a short distance, and is difficult to flush a second time in thick grass. The flesh is very inferior to that of the Snipe ; and, indeed, is pronounced 'nasty' by some late writer. Blyth remarks that when surprised, it has the habit of spreading out its wings and tail, and so forming a sort of radiated disk which shows off its spotted markings, menacing the while with a hissing sound and contracted neck, and then suddenly darting off. The young and the eggs are figured in Jardine's contributions to Ornithology. It is found throughout India, Ceylon, Burmah, parts of Malayana, and Southern China, and also throughout Africa.

WILD FOWL OF INDIA.

Tribe LAMELLIROSTRES.

Bill thick, depressed, broad, covered with a soft skin, the tip alone being horny; the edges in most furnished with numerous laminae; wings moderately long, 1st and 2nd quills subequal, or 2nd longest.

The birds of this tribe form a very natural and extensive group, as well marked and recognizable (with perhaps one exception), as that of the Pigeons. The chief characteristic is the bill, which differs from that of all others in being furnished at the edges with thin horny lamellæ, more or less numerous and close, which serve as a sieve, allowing the water to pass through, but retaining any particles of food. The bill, moreover, is covered by a soft skin, the tip alone being horny, and this is called the nail or *dertrum*, and is often coloured differently from the other portion.

Geese and Ducks chiefly frequent fresh waters, marshes, lakes, and rivers; a few preferring salt water. They feed mostly on vegetable matter, but also on worms and insects, &c., a few only taking fish. Most of them lay numerous eggs, white or greenish, and the young follow their parent as soon as hatched. The majority nidificate on the ground, others on trees or even rocks. Many are migratory, and their flight is generally powerful, and in many rapid. They may be said to represent the *Rasores* in this order in consequence of their easy domestication, numerous eggs, and the excellent food they afford.

The sternum is large and wide, but of very thin texture, and has one fissure on each side; the tongue is very large and fleshy, with the edge toothed; the gizzard is large and highly muscular, and the cæca generally long, with a long intestinal canal. The trachea of the male is, in many, dilated near the bifurcation into capsules of varied form, and, in some, is elongated and enters

into a cavity in the keel of the sternum. In many instances the male has a large intromittent organ.

They may be divided into the following families :—

1st.—*Phœnicopteridæ*, Flamingoes, with uncommonly long legs and long neck.

2nd.—*Cygnidæ*, Swans, with lengthened neck but short legs.

3rd.—*Anseridæ*, Geese, &c. The legs generally placed more forward than in the next family.

4th.—*Anatidæ*, Ducks, with short legs placed far back.

5th.—*Mergidæ*, Mergansers, with the bill distinctly toothed at the sides.

Fam. PHÆNICOPTERIDÆ.

Neck and legs of enormous length ; bill suddenly bent down. There is only one genus.

Gen. PHÆNICOPTERUS, L.

Bill high at the base, suddenly bent down, the margin lamellate and dentate ; legs very long ; tibia bare to a considerable extent ; tarsus scutellate ; feet short ; wings moderate, 1st and 2nd quills sub-equal, longest ; neck very long.

The Flamingoes have the fleshy tongue and anatomical structure of the Ducks ; the bill is laminated to allow the superfluous water to pass off, and they appear to feed on various minute animal and vegetable substances which they find in the soft mud of the lakes and salt-water lagoons they frequent, for scooping up which, their peculiar bill appears well adapted ; when searching at the bottom, their heads are bent forwards till the deflected portion of the bill is horizontal. The diameter of the gullet in these huge birds is very minute.

The Flamingoes were long placed among the *Grallatores*, in consequence of their very long legs, and are still so classed in many foreign works on Ornithology. Swainson, I believe, was one of the first who perceived their affinities to be with the *Anserinæ*, and I cannot understand how any one can ignore the resemblance. The bill is quite that of the Ducks, and its relations with this family are recognised by various races. The Calmucs and Russians

call the Flamingo the Red Goose, and its Hindustani name also expresses its affinity to the Anserine group.

1. *Phœnicopterus roseus*, PALLAS.

P. antiquus, TEMMINCK—BLYTH, Cat. 1750—SYKES, Cat. 181—JERDON, Cat. 373—also *P. minor*, apud JERDON, Cat. 374?—GOULD, Birds of Europe pl. 287—*Bag-hans*, H., i. e., Heron-goose—*Raj-hans* of some—*Kan-thunti*, Beng.—*Pu-konga*, Tel., also *Samdrapa chilluka*, i. e., Sea-parrot—*Pu-nari*, Tam.

THE FLAMINGO.

Descr.—Throughout of a rosy white, the rose colour more marked on the head, back, and tail; wing-coverts, (except the primary-coverts, which are white) and the tertiaries fine rosy red; quills black, the last of the secondaries white; lower wing-coverts black.

Bill rosy, black at the tip; irides pale golden-yellow; legs and feet pale rosy-red. Length 4 feet 4 inches; wing $16\frac{1}{2}$; tail 6; bill 4; tarsus 12; mid.-toe $3\frac{1}{2}$. Weight 10 lbs.

The female is smaller, and the young birds have the upper plumage, especially the wing-coverts, mixed with brown and dusky spots, and hardly any rosy tinge.

I was at one time inclined to believe in the existence of another species, which, I was informed, visited India during the cold weather in small flocks, and in my Catalogue I called it *P. minor*, after Temminck. Mr. Blyth was also of opinion that there was a second species (and Bonaparte named it *Ph. Blythii*); but, in his Catalogue, he gave it as a variety of the other. Temminck's bird, from Africa, is figured by him in Pl. Col. pl. 419, and is stated to be very distinct.* Some specimens in the Museum of the Asiatic Society are distinctly smaller; the leg shorter, only 9 to 10 inches instead of 12; but the bill is nearly equally large, and the wing only 1 inch or so shorter. Two of these appear in adult plumage; and there are others quite similar in dimensions, evidently in younger plumage, and one with a slightly rusty coloured head. All these however are probably females, and

* Mr. Blyth, however, has quite recently written me that it is very like the small Indian race.

without more information, I shall consider them to be females of the common species.*

The Flamingo is found, here and there, throughout India, is very rare in some parts, and is perhaps chiefly found not far from the sea-coast. It is very abundant near Madras, in the Pulicat lake; also between Madras and Pondicherry, and south towards Tuticoreen; it is also met with in the Northern Circars, at the great Chilka lake, south of Cuttack, and occasionally near the mouth of the Hooghly and some of the Soonderbun rivers. In Central India and the Deccan, flocks generally visit some of the larger tanks during the cold weather, and they are also now and then met with in Northern India. Adams states that they are not uncommon on the Punjab rivers and lakes, during the cold weather.

The Flamingo appears to be found throughout the south of Europe, Africa, and great part of Asia. It feeds on minute molluscs, small insects and crustacea, worms, &c., which it scoops up by its inverted bill together with the soft mud from the bottom of lakes, salt water lagoons, &c., subsequently rejecting the inorganic matter with the water through the laminæ of its bill; I have however generally found some mud in the stomachs of those that I have examined. It also eats confervæ, and other soft vegetable matter; and, in confinement, will eat bran mixed with water, boiled rice, &c.

It is said to form a large conical nest of mud, or mud and grass, and to sit astride on the top of it. A late writer, however, states that it lays its eggs on any slight elevation in swamps, generally on a narrow path between two ditches, and that many nests are placed together in a line. The eggs are two in number, dull white and with a very rough chalky surface. Flamingoes do not, that I am aware of, nidificate in this country.

Flamingoes are very wary birds; during the heat of the day they rest in the water, drawn up in long lines, with sentinels on either side which give warning of danger by a trumpet-like call, something

* M. Verreaux has characterized a small race from Africa as *P. erythræus*. It resembles the present species, but is smaller; the tarsus only $10\frac{1}{2}$ inches; the wing $14\frac{3}{4}$, and the head and neck are aurora red. It is probable that this species, if distinct, may occasionally visit Western India, and perhaps be my small Flamingo, Cat. 374.

like the cry of the wild goose, a cry which is occasionally repeated during flight. When feeding, they are more easily approached. They are excellent eating. I have seen Flamingoes kept alive at Hyderabad in the Deccan. It has been stated that they sleep on one leg, with the neck bent back, and the head under the wing. Nuttall says that they run swiftly, but I have never seen them, even when in danger, move at any other pace than a stately, moderately rapid walk. They are said to swim well with the port of Swans, but I have never seen them do so.

Other species, besides *P. minor*, T., from Africa, are *P. ignipalliat* of South America, and *P. erythræus*, Verreaux, if distinct from our species.

Fam. CYGNIDÆ.

The Swans are well characterized by their enormously long necks and moderate feet. They have the bill high at the base and of equal breadth throughout, are of very large size, and feed on the seeds and roots of water plants, and also on grass. Their intestines are very long, as are their cæca. They possess 23 cervical vertebrae. The trachea has no inflation or labyrinth. The sexes are alike, and they have no seasonal change. The male guards the female during incubation.

In one group the trachea, after making a slight curve towards the ridge of the sternum, enters the lungs, and there is usually a fleshy caruncle over the base of the upper mandible. To this section belongs *Cygnus olor*, or the Mute Swan, of which *C. immutabilis* is the wild race. Others of this group are *C. nigricollis* and *C. anatoides* of South America; and the celebrated black Swan, *C. atratus*, which is separated as *Cehnopsis*, Wagler.

The birds of the next group have the trachea elongated, as in the Cranes, and entering a cavity in the sternal ridge. They have no protuberance on their bill, are all white, with black feet, and are restricted to the Northern Hemisphere. To this group belong the Hooper Swan, *Cygnus musicus*, and Bewick's Swan, *C. Bewickii*, of Europe; and two American species, *C. buccinator* or the Trumpeter Swan, and *C. Americanus*.

The Hooper Swan, *Cygnus musicus*, is said to have been met with in Nepal, and a head and a foot, stated to be from that country, are in the British Museum; if killed there, however, it could only have been a very accidental visitor, and was more probably brought from the Tibet side of the Hills.

The genus *Coscoroba*, Bonap., founded on *Anas coscoroba*, Gmelin, (*A. chionis*, Illiger) from South America, is placed by Bonaparte at the end of the Swans.

Fam. ANSERIDÆ.

Bill moderate or short, narrower in front than behind, more or less raised at the base; legs rather long, set more forward on the body than in the Ducks; plumage of the sexes differing but slightly.

This family comprises several distinct groups, and is divided into the following sub-families:—

- 1st.—*Anserinæ*, True Geese.
- 2nd.—*Cereopsinæ*, New Holland Geese.
- 3rd.—*Plectropterinæ*, Spurred Geese.
- 4th.—*Nettupodinæ*, Anserine Teal.
- 5th.—*Tadorninæ*, Shieldrakes, &c.

Sub-fam. ANSERINÆ, True Geese.

Bill short, high at the base, conical; nail large, convex; laminar. teeth more or less exposed, short; nostrils median, large; tarsus thick, lengthened; feet of moderate or rather small size; wings ample, moderately long, 1st and 2nd quills longest; tail short, of 16 or 18 feathers; legs nearly central; tibia feathered nearly to the joint; neck moderately long; trachea simple.

Geese, as here characterized, have a large heavy body, with a tolerably long neck and a small head. The wings are long and powerful, and the hind toe is very small. They live in flocks, breeding for the most part in polar regions, and migrating in winter to more genial climates; when flying, they maintain regular long lines, and emit loud clanging calls. They walk well on land in consequence of the central position of their legs. They feed entirely on vegetables, grazing on grass and young corn, their short stout bill being well suited for biting off the shoots; and they spend the heat of the day on sand-banks in rivers, or in the centre of large lakes. They

make large nests of grass, &c., on the ground, in marshy places, and lay several whitish eggs. During incubation, the males of many live apart from the females, and assemble in flocks near the sea-coast. The first down of the nestlings is mottled. Four or five species visit India in the cold weather, and probably others will be identified hereafter.

Gen. ANSER, Brisson.

Char.—Bill very high at the base, about the length of the head; the lamellæ, tooth-like, very apparent externally; nostrils a little behind the middle; toes moderately long, claws short and curved; neck moderately long. Of large size and grey plumage, the bill pale, and legs usually reddish.

2. *A. cinereus*, MEYER.

BLYTH, Cat. 1755—*Anas anser*, LINN.—*A. ferus*, GESNER—*A. vulgaris*, PALLAS—GOULD, Birds of Europe, pl. 347—*Hans*, H. also *Haj*—, *Bannaia-hans*,—*Kallauk*—*Karhans* at Bhaugulpore.

THE GREY GOOSE.

Descr.—Head and neck clove-brown, tinged with grey; the forehead whitish; back, scapulars, greater and middle wing-coverts clove-brown, the feathers broadly edged with greyish-white; lower back and upper tail-coverts bluish-ashy; lesser wing-coverts and base of the primaries bluish-grey; primaries black, shaded with grey, with the shafts white; secondaries black, edged with white; rump and sides of the upper tail-coverts white; tail brown edged with white, the outermost one almost wholly white; breast and upper belly greyish-white, undulated with bars of a deeper tint; lower abdomen and under tail-coverts white.

Bill fleshy or dull orange-red, the tip whitish; irides deep brown; legs livid fleshy or tile-red. Length 30 to 32 inches; wing 18; tail 6; bill at front $2\frac{5}{8}$; tarsus 3; mid-toe and claw $3\frac{1}{4}$; extent $4\frac{1}{2}$ feet; weight 9 to 12 lbs.

The common wild Goose, or grey lag Goose of England, is a common winter visitant to the North of India, extending its migrations to Central India, but rarely seen further South. It is sometimes met with in small parties of from four to twenty; occasionally in vast flocks, which feed on young corn, grass, &c., and

during the heat of the day, rest on some sand-bank in the large rivers, or in the middle of a tank. This Goose is a wary bird, approached with difficulty when feeding, but may occasionally be stalked when on the bank of a river or tank; I have often killed it from a boat. The flesh is excellent. In the wild state it breeds in Northern Europe and Asia, making a large nest among the rushes, and laying from eight to twelve whitish eggs. It is the origin of the domestic Goose. It is very similar to, and is occasionally confounded with the Bean-goose of England, *A. segetum*, but that species is smaller, with the bill proportionally smaller and differing in colour.

3. *Anser brachyrhynchus*, BAILLON.

BLYTH, Cat. 1756,—*A. phænicopus*, BARTLETT.

THE PINK-FOOTED GOOSE.

Descr.—Head and upper part of neck brown, the lower part of the neck reddish-ashy; body above brownish cinereous, with white undulations; the longest of the scapulars edged with white; upper tail-coverts black, a few of the longest white; lesser and median wing-coverts bluish-ashy, edged with white; the two first primaries bluish, the others black; tail black; breast and upper abdomen ashy-whitish; lower abdomen and under tail-coverts pure white.

Bill much smaller than in the last, fleshy-red or purplish, the base and the nail black; feet pinkish-red. Length 27 inches; wing 17; tail $5\frac{1}{2}$; bill at front $1\frac{3}{4}$; tarsus 3; middle toe 3.

This species is said to occur in the Punjab and Western India, Mr. Blyth stating that he has seen an undoubted drawing of this Goose made in the Punjab. Captain Irby also records it from Oudh. It is an inhabitant of Northern and Central Europe.

4. *A. albifrons*, GMELIN.

Anas apud GMELIN—GOULD, Birds of Europe, pl. 289.

THE WHITE-FRONTED GOOSE.

Descr.—Head and neck brownish, shaded with reddish; forehead and part of the cheeks white, surrounded by a dark brown band; body above dull ashy-brown, with reddish-white margins to the

feathers; upper tail-coverts dark ashy, the longest white; lesser wing-coverts dull brown, slightly edged rufous; middle coverts ashy-bluish, tipped white; primaries ashy-grey, black at the tip; secondaries black; tail ashy, the feathers edged and broadly tipped with white; plumage beneath brownish on the breast and flanks, passing into whitish grey with spots and wide cross bands of black on the lower part of the breast, the upper abdomen and flanks; lower abdomen and under tail-coverts pure white.

Bill purplish-red, orange-yellow round the nostrils, on the middle of the upper mandible and the edges of the lower mandible; tip whitish; irides deep brown; legs orange, the nails white. Length 27 inches; wing 17; bill at front $1\frac{1}{2}$; tarsus 3; mid-toe $2\frac{3}{4}$.

The white-fronted Goose has, within our territories, only been observed hitherto in the Punjab, Adams stating that it is a winter visitant to the lakes and rivers of that province. It is found throughout Europe, Northern Asia, and North America. It is stated to frequent marshes and rarely to visit corn-fields.

5. *Anser erythropus*, LINN.

NEWTON, *Ibis*, 2, p. 406—*A. minutus*, NAUMANN—*A. medius*, TEMMINCK—BREE, *Birds of Europe*, pl.

THE DWARF GOOSE.

Descr.—Top of head, forehead, throat, front of cheeks, and the under and upper tail-coverts pure white; the rest of the head, neck, and crop grey, with those parts nearest the white front of the head darker; scapulars and back dark brown grey, with transverse lighter bands; upper wing-coverts blue-grey; lower, the same colour as the back, edged with white; primaries, of the same blue-grey as the upper coverts; secondaries black; tail grey, margined with white at the tip, and white at the base; abdomen black, bordered with white, and the flanks the same dark grey-brown as the back, each feather edged with lighter and separated from the edge of the wing, when folded, by a white streak.

Bill orange*; feet and legs red. Length 22 inches; wing 15; tail $4\frac{1}{2}$; weight 4 lbs.

* Mr. Bree, whose description of this Goose I have copied, in his specific character gives the beak black, but in the description orange. Probably the nail only is black.

Mr. Newton first showed that this little Goose was the true *erythropus* of Linnæus, and that this name had been improperly applied to the last species. Captain Irby mentions having observed this Goose in Oudh. It is chiefly an inhabitant of Northern Europe, is occasionally taken in Central Europe, and is said not to be uncommon in Greece. It also inhabits Northern and Central Asia.

The next species has been sometimes placed under *Bernicla*, Stephens, and latterly has been separated as *Eulabeia* by Reichenbach. It appears to be intermediate between the Bernacle Geese and the true Geese, and I shall not give it distinct generic rank.

The teeth of the mandible are distinctly visible at the base, which they are not in true *Bernicla*; the bill is larger and the feet are reddish.

6. *Anser indicus*, GMELIN.

BLYTH, Cat. 1757—JERDON, Cat. 375—GOULD, Cent. Him. Birds, pl. 80.

THE BARRED-HEADED GOOSE.

Descr.—Head white, with two blackish bars on the occiput and nape; back of neck hair-brown, sides of neck white; upper plumage very pale ashy, the feathers edged with whitish and tinged with pale reddish-brown; lower back and rump pure pale ashy-grey, sides of the rump and upper tail-coverts whitish; tail grey, white tipped; wing-coverts pure ashy; quills grey, dusky towards the tip, and gradually becoming darker on the secondaries; tertials brownish-grey; beneath, the chin and throat white; neck brownish-ashy, passing gradually into cinereous on the breast, whitish on the upper abdomen and the lower abdomen; vent and under tail-coverts white; flanks cinnamon-brown with pale edgings.

Bill yellow; irides brown; legs orange. Length 27 inches; wing 17; tail 6; bill at front 2; tarsus $2\frac{3}{4}$; mid-toe $2\frac{1}{4}$; weight 7 to 8 lbs.

This Goose appears to be peculiar to India, and probably the adjacent countries north of the Himalayas, where it breeds, as it is not recorded by Pallas as a bird of Northern or Central Asia. It is chiefly a winter visitant to India, arriving in Northern India towards the end of October or beginning of November, and

leaving in March. It is occasionally met with in immense flocks of many hundreds, usually in smaller parties. It grazes on the river banks and fields of corn, chenna, &c., retiring about 10 or 11 A. M. to some tank or river, where it reposes during the greater part of the day, returning to the fields in the afternoon. A writer in the *Bengal Sporting Magazine* states that this Goose is found in immense abundance both in Bundlekund and in the country between Agra and Gwalior; but that the larger kind (*A. cinereus*) is not met with in the latter locality. I once saw a couple of these Geese in the extreme south of India in August, in a small sequestered tank. This pair may have been breeding there, but perhaps they were wounded or sickly birds. This Goose probably breeds in the large lakes beyond the Himalayas, where swarms of water-birds have been observed by various travellers in summer. It is excellent eating, but perhaps in this respect inferior to the Grey Goose.

There are several other wild Geese found in the Northern Hemisphere, the distinctions between some of which are rather obscure. Among them are *A. segetum*, the Bean-geese, which, besides being smaller than *cinereus*, has the nail of the bill black. The Barnacle Geese have the bill smaller than the true Geese, and the lamellæ are short and not exposed. The legs are generally black. As previously stated, these are by some placed in a distinct genus, *Bernicla*, Stephens. The Barnacle Goose, *B. leucopsis*, is smaller than the wild Goose, and is remarkable for the fable which was believed in by our ancestors, that it took its origin from the shell barnacles (*Lepas*); the same tradition was connected with the Brent Goose, *B. brenta*. Another Asiatic species is *A. ruficollis*, Pallas. The Snow Goose, *A. hyperboreus*, has the teeth very prominent, and has been separated as *Chen*. It is white with black primaries. A second species of this group is *A. cærulescens*, L., formerly considered the young of *hyperboreus*. It has been killed in Britain. *A. cygnoides*, L., the Chinese or knobbed Goose, was considered by Cuvier to belong to the Swans, but is strictly a Goose with only 16 cervical vertebræ.* It is domesticated in China, and breeds very readily with the

* Quite recently a Sportsman told me that he had shot a large brown-necked Goose in the interior of the Himalayas. Could it have been this species? or *A. ruficollis*?

common Goose. Blyth considers the common domestic Goose of India to be a hybrid between this and *A. cinereus*. *A. canadensis*, L., a large Goose with a long black neck, was also considered to belong to the Swans by Cuvier. It is now classed among the Bernacle Geese. A handsome group of Geese, typified by *A. picta*, Pallas, and *A. magellanica*, Gml., is found in the icy regions, both Arctic and Antarctic, and has been named *Chloephaga* by Eyton; *A. jubata*, Lath., from Australia, has been separated as *Chlamydochen*. The former of these, however, have tracheal labyrinths, and, if they do not belong to the *Tadorninae*, unite those birds to the Geese.

The sub-family *Cereopsinae* comprises only one genus and one species, *Cereopsis Novæ Hollandiæ*, which has a small bill extending back on the forehead, long legs bare above the joint, and a tracheal labyrinth. It seldom enters water. This curious Goose appears to have some affinities with both the *Rasores* and *Grallatores*.

Sub-fam. PLECTROPTERINÆ, Spurred Geese.

Wings generally with one or more spurs on the shoulder. Bill, in most, furnished with a boss or protuberance at the base. Legs in general long. Plumage glossed black and white. Sexes alike, or nearly so.

The Spur-winged Geese form a small group typified by *Anas gambensis*, L., of Africa, of which the Muscovy Duck, *A. moschata*, is an aberrant form, having unusually short legs. The male is said to guard the nest during incubation. There is only one species in India.

Gen. SARKIDIORNIS, Eyton.

Syn. *Plectropterus*, Leach (partly).

Char.—Bill lengthened, of nearly equal width throughout; that of the males usually furnished with a naked, compressed, fleshy protuberance on the culmen; wings with one or more tubercles or blunt spurs at the shoulder; 1st and 2nd primaries sub-equal and longest; legs lengthened; feet large; tarsus with sub-quadrate scales. Of large size. Plumage glossy black above. Sexes nearly alike in colour, but the males much larger than the females.

The Spur-winged Geese are found in the hot regions of Africa and India, where they are permanent residents.

7. *Sarkidiornis melanonotus*, PENNANT.

Anser apud PENNANT, Ind. Zool., pl. 11—BLYTH, Cat. 1763—SYKES, Cat. 213—JERDON Cat. 379—Pl. Enl. 937—*Nukta*, H. and Mahr.—*Jutu chilluwa*, Tel.—Comb-duck of Sportsmen in Madras and Bombay.

THE BLACK-BACKED GOOSE.

Descr.—Head and neck white, spotted with glossy black, the top of the head and back of the neck mostly black; interscapulars and scapulars, black glossed with purple; back ashy-grey, becoming dusky on the rump; the upper tail-coverts glossy green; wing-coverts glossed green; quills black; tail black; all the lower parts pure white; bill and protuberance black; irides dark brown; legs greenish plumbeous.

Male—Length 30 to 34 inches; wing 16; tail 6; bill at front $2\frac{1}{2}$; height of protuberance 2; tarsus nearly 3; mid-toe and claw $3\frac{1}{2}$. Weight 6 lbs.

The female is much smaller, less brightly colored, more spotted on the neck, and she wants the fleshy boss at the base of the bill. Length about 26 inches; wing 12 to 14.

This Goose is very common in Central and Western India, less so in the extreme south, and is very rare in Lower Bengal. It is generally seen in small parties from four to ten, but occasionally in flocks of above a hundred: it chiefly frequents grassy tanks, and is not unfrequently seen in paddy fields. During the rains, it wanders about a good deal, and may often be seen feeding in very small tanks, or even in temporary pools of water. It breeds in this country in July or August, in grass by the sides of tanks, laying six to eight whitish eggs.

It is not a particularly wary bird, and may generally be approached tolerably closely. Its flight is not very rapid. This Goose is not held in very high esteem for the table, but at some seasons is most excellent, and the young birds are especially

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delicate. It is found in Ceylon and Burmah, apparently not extending into Malayana.

Other species of this genus are *S. africana*, Eyton, and *S. regia*, Mol., from South America, (united to the Indian species in Gray's Genera of Birds). *Plectropterus gambensis*, L., is the most typical member of the group and has the longest legs. *Anseranos melanoleuca*, (Latham) from Australia, is a very remarkable type. The hind toe is long and nearly on the same plane as the anterior toes, and the feet are only webbed at the base; were it not for its completely Duck-bill, it could not be classed here. The Musk-duck already alluded to, *Cairina moschata*, (placed by Gray among the true Ducks,) is originally from South America; it breeds freely with the common Duck, but the offspring are not fertile.

Sub-fam. NETTAPODINÆ. Bonap.

Of small size; bill small, high at the base.

These little ducks or rather geese, have much the colouring of the last group, of which they may be said to be miniatures, but the bill is still shorter and higher at the base, more anserine in its character, and Gray, indeed, places them among the *Anserinæ*. Their peculiar aspect, however, and habits demand a separation. Representatives of the group occur in Africa, India, and Australia.

Gen. NETTAPUS, Brandt.

Syn. *Anserella*, Swainson—*Microcygna*, Gray.

Char.—Bill small, high at the base, gradually narrowing in front, the lamellæ short, distant, concealed; nostrils small near the base; wings rather short; tail short, rounded, of twelve feathers; tarsus short; feet long, hind toe short; claws short and curved.

8. *Nettapus coromandelianus*, GMELIN.

Anas apud GMELIN—BLYTH, Cat. 1766—SYKES, Cat. 214—JERDON, Cat. 378. *Bernicla girra*, GRAY—*Dendroc. affinis*, JERDON, Cat. 378 bis., winter dress—*Girja* and *girri*, H. and Mahr.—*Ghangerēl* and *Gangania* Beng.—*Buliya hans* at Dacca—'Cotton Teal' of many Europeans.

THE WHITE-BODIED GOOSE-TEAL.

Descr.—Top of the head black; back, scapulars and wings richly glossed with purple and green, the purple prevailing on the back and scapulars, the wing-coverts and base of the quills green; rump blackish in the middle, white at the sides; upper tail-coverts cinereous brown with pale mottlings; tail blackish brown; primary quills with a large white patch tipped with black on their terminal half, the white gradually diminishing in extent; the secondaries only tipped with white; tertials pure black, glossed green externally, purplish within; face, back of head, and whole neck and under parts pure white, with a black collar round the lower part of the neck; flanks white with fine zig-zag brown lines; vent and under tail-coverts mottled dusky and white.

Bill black; irides crimson; legs greenish ochry-yellow tinged with black at the breeding season. Length 13 to 14 inches; wing $6\frac{1}{2}$; tail $2\frac{3}{4}$; bill at front 1; tarsus 1; mid-toe $1\frac{1}{2}$. Weight 9 to 10 ounces.

The female is duller and more brown, above faintly glossed, the primaries want the white patch, the sides of the rump and upper tail-coverts are pale brown; the top of the head is dusky, and there is a dark stripe through the eyes; the neck is mottled with dusky lines; the under parts are dirty white, the flanks pale brown, and under tail-coverts whitish.

This pretty little Goslet (as it may be named) is found over the whole of India, Ceylon, Burmah, and Malayana, in great abundance in many parts, more rarely in the North-western Provinces. It frequents weedy and grassy tanks in moderate or rather large flocks, flies with great rapidity, uttering a peculiar cackling call, and is, when undisturbed, very familiar and unwary. It breeds generally in holes in old trees, often at some distance from water, occasionally in ruined houses, temples, old chimneys, and the like, laying eight or ten (sometimes, it is stated, as many as fifteen,) small white eggs. The young are clad with copious black down, and are, as a writer in the *Indian Sporting Review* observes, literally turned out of the nest by the parent as soon as they are hatched, and led to the neighbouring water. The same writer states, that the ducks alone attend to the duties of incubation, the drakes

collecting together in small flocks. I doubt if this is always the case, as I have on more than one occasion seen a pair fly off a tree in which they had a nest. This bird is not in general held in high estimation for the table; still at times it is excellent, and one writer says 'delicious.' The peculiar shuffling gait of these ducks when on land has been noticed by Mr. Blyth, who states 'that after walking a few steps they always squat.' In the wild state they probably never alight on the land.

A very closely allied species is *N. albipennis*, Gould, from Australia, formerly considered identical; and there is another still more beautiful species from the same country, *N. pulchellus*, Gould. The Australian species are described by Gould as nesting on the ground. Another species is found in Madagascar, *N. auritus*, considered by Gray as the type of *Nettapus* (as restricted), the Indian species being classed under *Anserella*, Swainson.

Sub-fam. TADORNINÆ.

Bill more or less raised at the base, and flattened towards the tip. Plumage more or less rufous.

This group comprises the Shieldrakes and Whistling-teal of hot countries, which, though not separated by Gray from the true Ducks, form a very distinct division. They have the bill rather large, and stand high on their legs, which are not set far back. They may be said to be intermediate between Geese and Ducks. Some have a speculum or wing-spot like the Ducks, and an inflated vesicle on the trachea; but the voice is rather that of a Goose than a Duck; the plumage is only moulted once a year; there is no seasonal change, and there is but little difference between the plumage of the sexes. They are chiefly vegetable feeders, some indeed grazing like Geese, and they have very long and slender intestines. They are for the most part inhabitants of warm climates and of the Southern Hemisphere.

Gen. DENDROCYGNA, Swainson.

Char.—Bill rather large, lengthened, of uniform width, slightly elevated at the base; wings short, broad, rounded, 2nd, 3rd, and 4th primaries sub-equal and longest; secondaries long; tarsus long and stout; feet large, hind toe rather long.

The Whistling-ducks are found in the warmer regions of both Continents. They build either on the ground or on trees. Some have the toes not fully webbed. They are classed by many apart from the Sheldrakes, and in their structure somewhat resemble the *Plectropterinae*, but their tints are those of the Sheldrakes, though they want the wing-spot. Gray places them in *Anatinae*. Two species occur in India.

9. *Dendrocygna awsuree*, SYKES.

Mareca apud SYKES, Cat. 220—JERDON, Cat. 376—*D. arcuata*, HORSF., apud BLYTH, Cat. 1762, and others—*A. caryophyllacea*, apud SUNDEVALL—*Silli*, H.—*Sural*, Beng.—*Harrili hans* in East Bengal—*Yerra chilluwa*, Tel.

THE WHISTLING-TEAL.

Descr.—Head and occiput dull wood-brown; face, ears, and neck, pale whitish-brown, becoming darker on the back of the neck and upper back, and faintly edged with pale rusty; back and scapulars dusky black, broadly edged with rusty-brown; rump glossy black; upper tail-coverts chesnut; tail brown with slightly paler edges; lesser and median wing-coverts fine rich marone-red; greater coverts and all the quills dusky black; beneath, the chin and throat albescent; the neck whitish-brown, passing into brown, yellowish on the lower neck, and gradually merging into the deep ferruginous or light chesnut of the whole of the lower surface; vent and under tail-coverts albescent.

Bill blackish; irides brown; orbits bright yellow; legs and feet dark plumbeous. Length about 18 inches; extent 27; wing 8; tail 2; bill at front $1\frac{1}{2}$; tarsus $1\frac{3}{4}$; mid-toe $2\frac{3}{4}$.

This species is sometimes confounded with *D. javanica*, Horsf., (*arcuata*, Cuvier), but appears to differ in wanting the lunules on the neck and breast, in the upper tail-coverts being marone, and in its somewhat smaller size. It may be the variety indicated by Horsfield under the name of *Meliwis batu*.

This Whistling-teal is generally spread throughout India and Burmah, and is a permanent resident. It associates, in the cold weather, in numerous flocks, frequenting by preference wooded

tanks or weedy jheels. The flight is slow and rather heavy, and during flight it frequently utters the peculiar sibilant, whistling call from which it derives its popular name. It generally, perhaps, breeds in the drier patches of grass on the ground, often at a considerable distance from water, carefully concealing its nest by intertwining some blades of grass over it. Occasionally, however, it builds its nest in hollows of trees, and not unfrequently in nests made of sticks, and that have, in some cases at all events, been used by Cormorants or small Herons. The eggs are white, generally six or eight in number.

Gould figures one of the Australian species under the name of *D. arcuata*, Cuv., the Javanese bird, but it appears to me to be quite distinct.

10. *Dendrocygna major*, JERDON.

JERDON, Cat. 377—BLYTH, Cat. 1761—JERDON, Ill. Ind. Orn., pl. 23—*D. vagans*, EYTON, Mss—figured under that name in FRASER, Zool. typ.

THE LARGE WHISTLING-TEAL.

Descr.—Head and neck chesnut, darker on the top of the head, whence a dark line extends down the back of the neck; chin, throat, and foreneck pale; in the centre of the neck there is a broad patch of small, whitish, somewhat hackled feathers; upper part of the back and scapulars deep brown, the feathers edged with chesnut; lower part of the back black; lesser wing-coverts dark marone, the other wing-coverts, wings, and tail, dusky black; lower plumage chesnut; under tail-coverts (and a few of the upper tail-coverts also) yellowish white; the feathers of the flanks much lengthened, chesnut on one side, and yellowish-white on the other.

Bill plumbeous; irides brown; orbits pale livid; legs and feet dark plumbeous. Length 21 inches; wing $9\frac{1}{4}$; tail $2\frac{1}{4}$; tarsus $2\frac{1}{4}$; mid-toe $3\frac{1}{2}$; bill at front nearly 2.

This species of Whistling-teal appears to be generally spread throughout India, but is somewhat rare in most parts of the country: it is most common in the western districts. I found it tolerably abundant in the Deccan at Jalnah, indeed as common as the lesser

kind, but not breeding in that part of the country. Mr. Blyth has frequently obtained it from the Calcutta market, and I procured it occasionally in the Carnatic. I have no authentic record of its occurrence out of India, but it is probable enough that it occurs in Burmah, and may, perhaps, be the variety indicated by Horsfield as *Meliwis kembung*.

There are species of this genus in Africa and South America, one indeed, *D. viduata*, is said to occur both in Africa and America; also in Australia, as well as in some of the Malayan islands, and one species from Australia, has been separated as *Leptotarsis Eytoni*, Gould.

The birds of the next group have, like the Ducks, a brilliantly colored speculum on the wing. They stand high on their legs, and the down of the young is said to be pied.

Gen. CASARCA, Bonap.

Char.—Bill moderate, slightly raised at the base, depressed anteriorly, of uniform width, nail large; laminae slender, very apparent; wings moderately long, when closed reaching to the end of the tail, which is short and slightly rounded, of fourteen or sixteen feathers; tarsus moderate, stout; toes long; hind toe lobed.

These are Shieldrakes with some of the habits of Geese, grazing in young cornfields. They nestle in deserted holes, also among rocks and on cliffs, often far removed from water.

11. *Casarca rutila*, PALLAS.

Anas apud PALLAS—BLYTH, Cat. 1768—JERDON, Cat. 386—SYKES, Cat. 215—GOULD, Birds of Europe, pl. 358—A. rubra, GMELIN—*Surkhab*, H. of Falconers—*Chakwa*, *Chakwi*, H.—*Chakra-baka*, Sansc.—*Bapana chilluwa*, Tel.—‘Braminy Duck’ of Europeans in India.

THE RUDDY SHIELDRAKE.

Descr.—Male, forehead and cheeks pale ochreous-yellow or ferruginous; the region of the eyes, crown, and nape, greyish-white; the rest of the neck ochreous-yellow, tinged with orange, surrounded by a glossy black collar nearly half an inch wide; the back and scapulars orange fulvous, some of the feathers edged

paler; upper tail-coverts glossy green-black; lesser and middle wing-coverts white; greater coverts green, glossed with purple; primaries black; secondaries glossy green; tertials bright fulvous; chin pale yellowish; breast and lower parts orange fulvous, deepest on the breast.

Bill black; irides dark brown; legs black. Length 24 to 25 inches; extent 44; wing 16; tail 7; bill at front $1\frac{3}{4}$; tarsus $2\frac{3}{4}$; mid-toe $2\frac{1}{4}$; weight 4 lbs.

The female is smaller, wants the black collar, and is more white about the forehead, chin, and face.

The Ruddy Sheldrake or Braminy Duck, as it is called in India, is a well known winter visitant to all parts of the country. It is generally seen, even at this season, in pairs or small parties, frequenting alike rivers, brooks, wheels, and lakes. It walks well on the ground and grazes in the young cornfields just like Geese; it also picks up seeds of grass, grain, &c. A writer in the *Indian Sporting Review* for 1854 states, that "it is often found devouring carrion on the banks of rivers, and is frequently seen banqueting in company with Vultures, and associating with such other villainous companions." This must be a very rare occurrence; I have constantly, when on the Ganges and other large rivers, been on the watch to verify this observation, but as yet have never seen anything approaching to such a habit, and I have moreover questioned many sportsmen on the subject with a like result. Towards the close of the cold weather, the Braminy Ducks assemble in numbers, and on the Chilka lake I have seen thousands in one flock in April. The call is peculiar and Goose-like, (like a clarionet, says Pallas) sounding something like *à-oung*, and hence the name of *Aangir*, which, according to Pallas, is given to this bird among the Mongols, by whom it is held sacred.

It is found over the greater part of Central Europe, being occasionally even killed in Britain; also in Northern Africa, and great part of Asia, not extending however far north. It breeds across the Himalayas on rocks near lakes, as observed by Hooker and Adams respectively in Sikim and Ladakh; also in holes of walls, and occasionally in deserted holes in the ground. Salvin found it breeding on almost inaccessible cliffs in Northern Africa far from

water, along with Kites and Ravens, and he states that he procured four white eggs; other observers say that it lays from eight to ten. It has bred in the Zoological gardens, and reared four young ones. The Hindoos have a legend that two lovers for some indiscretion were transformed into Braminy Ducks, that they are condemned to pass the night apart from each other on opposite banks of the river and that all night long each, in its turn, asks its mate if it shall come across, but the question is always met by a negative—"Chakwa, shall I come? No, Chakwi." "Chakwi, shall I come? No, Chakwa." Pallas states that it does not extend beyond 50° N. L., and that it usually nestles in Marmot's holes, also in rocks, and occasionally even in hollow trees. It is held sacred by the Mongols and Calmucs.

12. *Casarca leucoptera*, BLYTH.

JARDINE, Contrib. Orn. pl.

THE WHITE-WINGED SHIELDRAKE.

Descr.—Head and neck mottled black and white, perhaps pure white in the adult; hind neck glossy black; rest of the upper plumage, including the tail, blackish brown; shoulders and wing-coverts pure white; greater coverts black; primaries dusky; secondaries slaty; tertials lengthened and wide, dusky, the outermost with a white border, showing as a white line on the wing; neck and breast glossy black; rest of the lower plumage dusky castaneous, dark brown on the flanks and under tail-coverts.

Bill and legs black. Length 28 inches; wing 15; tail 6; bill at front 3; tarsus $2\frac{1}{2}$; mid-toe $3\frac{1}{4}$.

This fine Duck has hitherto been only procured in Burmah, but I have received information of a so-called 'Black Goose' occurring in Dacca and other parts of Eastern Bengal, which, from the description, can be no other bird, and I have hence introduced it among the Birds of India, and hope this season to procure specimens.

Other species of this genus are *C. cana*, Gmelin; *C. tador-noides*, Jardine; and *C. variegata*, Gmelin, (*C. castanea*, Eyton). The two former from Africa; the last from South America.

Gen. TADORNA, Leach.

Char.—Bill short, high, and gibbous at the base, concave in the middle; the tip flattened and turning upwards, of nearly uniform breadth; the nail abruptly hooked; marginal lamellæ not projecting; wing tuberculated; tarsus moderate; feet rather short; tail of sixteen feathers.

The Shieldrakes are a well marked group, distinguished by the peculiar form of their bill. Their legs are set well forward, enabling them to walk with ease. The sexes are nearly alike. They breed in clefts of rocks or holes in the ground. Pallas remarks that they do not extend far North, and that they are very partial to salt lakes, feeding much on small crustacea.

13. *Tadorna vulpanser*, FLEMING.

BLYTH, Cat. 1769—GOULD, Birds of Europe, pl. 357—*A. tadorna*, LINN.—*Tad. Bellonii*, STEPHENS—*Shah murghabi* and *Niraji*, in Sindh.

THE SHIELDRAKE.

Descr.—Male, head and upper part of neck deep blackish-green, with glossy reflections; lower part of the neck, back, wing-coverts, rump, and base of the tail white, the latter black-tipped; scapulars black; primaries black; greater-coverts, forming the speculum, rich bronzed green, three or four of the secondaries next the back, with their outer webs rich orange-brown; lower plumage white; a broad band of ferruginous brown across the breast, the ends passing upwards and uniting between the shoulders; a mesial line on the abdomen, widening at the vent, black; under tail-coverts pale reddish-brown.

Bill blood-red; irides brown; legs fleshy-red inclining to crimson. Length 23 inches; wing 13; tail 5; bill at front $2\frac{1}{4}$; tarsus 2; mid-toe 2; weight about 3 lbs.

The female has the colors somewhat more dull, and wants the pectoral band.

The Shieldrake is not common in any part of India, and is unknown in the South. It has been occasionally procured in the

Calcutta Bazar by Mr. Blyth, is sometimes met with in the N. W. Provinces, in Sindh, and at the foot of the Himalayas, and has been observed by Mr. Simson, B. C. S., in Eastern Bengal.

It occurs throughout Europe, the greater part of Asia, and Northern Africa, and breeds in deserted rabbit holes. The male at the breeding season acquires a large fleshy boss at the base of the upper mandible. The trachea is furnished with a labyrinth. The voice is goose-like.

Two other species of *Tadorna* are recorded, both from Australia, *T. radjah*, Garnot, and *T. nœvosa*, Gould. The former of these, which is said to be somewhat intermediate between *Tadorna* and *Casarca*, has been made the type of *Radja* by Reichenbach, but Gray in his List of Genera applies that name to *Leptotarsis* of Gould, one of the Whistling-ducks. The other species has been made the type of *Stictonetta* by the same Systematist.

The Egyptian Goose, *A. ægyptiaca*, Gmelin, of which the genus *Chenalopex*, Swainson is formed, appears to belong to this group, rather than to the *Plectropterinae*, to which it is referred by Gray. It has a small spur on the bend of the wing, its colouring is gay, and it has a single inflated labyrinth in the trachea. It was revered by the ancient Egyptians on account of the affection it displayed towards its young. Other species are recorded by Gray; some from America.

Fam. ANATIDÆ.

Bill broader at the base than high, shallow, depressed, of nearly equal width throughout, or wider at the tip; both mandibles with numerous transverse lamellæ; nostrils sub-basal or nearly median; tarsus moderately short, set far back on the body.

The Ducks differ from the last family by possessing a longer, shallower bill and shorter tarsus, and having the lamellæ of the bill more highly developed.

The sexes usually differ much in colour: the males of many assume the female plumage for a short period immediately after the breeding season, resuming their proper colouring at the autumn moult. They feed partly on vegetable matter and partly on minute worms, larvæ, &c. They have, for the most

part, a considerable dilatation of the œsophagus, and very long cœca. The trachea is almost always inflated at its bifurcation into cartilaginous labyrinths, of which the left is generally the larger.

They are divisible into two distinct groups or sub-families.

1. *Anatinæ*, True Ducks with the hind toe small and not webbed.

2. *Fuliginæ*, Pochards or Sea Ducks, with the hind toe larger and bordered with a distinct web.

To these some add the *Erismaturinæ*, by others considered a group of the *Fuliginæ*.

Sub-fam. ANATINÆ.

Hind toe not bordered by a membrane; head of moderate size; neck long and more or less slender; bill usually of even width throughout, or wider at the tip, not raised at the base; lamellæ numerous, fine; legs set a little more forward than in the next group, and they can walk tolerably well. The wings of most are long, and they fly rapidly.

The first genus has the bill much dilated at the tip.

Gen. SPATULA, Boie.

Syn.—*Rhynchaspis*, Leach—*Clypeata*, Lesson.

Char.—Bill long, the upper mandible wide, flattened in front of the nostrils and much dilated at the tip, or spatulate; the nail small; lamellæ very fine, like ciliæ, and projecting; tail slightly cuneate, of fourteen feathers; tarsus short. Cosmopolite.

In this genus, the lamellæ are developed to their greatest extent, and it is considered by some to be the type of the group.

14. *Spatula clypeata*, LINN.

Anas apud LINNÆUS—BLYTH, Cat. 1770—JERDON, Cat. 382—SYKES, Cat. 217—GOULD, Birds of Europe, pl. 360—*Tidari*, H. of some—*Alipat* in Sindh.

THE SHOVELLER.

Descr.—Male, head and upper part of the neck deep brown, with glossy green reflections; back dark umber-brown; scapulars

white; rump and upper tail-coverts brown, glossed with blackish-green, the sides of the rump white; tail brown, the feathers edged with white, and the outer one wholly white; lesser wing-coverts pale greyish-blue; median tipped with white; greater coverts, forming the speculum, brilliant green; primaries umber-brown; tertials rich purplish-black; lower neck and breast white; abdomen brownish-red; lower tail-coverts brown, glossed with blackish-green.

Bill brownish-black; irides yellow; legs orange. Length 20 inches; wing 10; tail $3\frac{1}{2}$; bill $2\frac{3}{4}$; tarsus $1\frac{1}{2}$; mid-toe $1\frac{7}{8}$.

The female has the head pale reddish-brown with fine dusky streaks; the rest of the upper parts dark brown, the feathers edged with reddish white; lesser wing-coverts slightly tinged with pale blue; speculum not so bright as in the male; under parts reddish, with large brown spots.

Towards the end of summer, the male bird puts on a peculiar livery, something like that of the female, but with the head black.

The Shoveller is found throughout India in the cold weather in small parties, often mixed with Gadwalls and other species; feeding near the edges of tanks in shallow water among weeds, chiefly on minute worms and larvæ, which it sifts from the mud. It is often late in leaving this country. It is found over both Continents, breeding, in temperate as well as in northern regions, in marshes, and laying ten to twelve oil-green eggs. The intestines of this Duck are very long, from 9 to 10 feet.

Other species of Shoveller are found in Africa, South America, and Australia; and *Malacorhynchus membranaceus* (Latham) is a somewhat allied form, from New Holland, with the edge of the bill prolonged on each side into a hanging membranous flap.

Gen. ANAS, Linn. (as restricted).

Char.—Bill of moderate length, depressed throughout, not so deep at the base as wide, nearly of uniform width; the lamellæ short, projecting very slightly; the tip rounded; nostrils near the base; tail short, of sixteen feathers; the middle tail feathers of some more or less curled upwards.

There are two or three types of coloration in this genus, even as restricted. The first in our list has the most variegated and richest plumage, is of extensive geographical distribution, and makes long migrations.

15. **Anas boschas**, LINNÆUS.

BLYTH Cat. 1771—GOULD, Birds of Europe, pl. 361—*Niroji*, Sindh.—*Nil. sir*, H.

THE MALLARD.

Descr.—Male, head and upper half of neck deep emerald-green, approaching to black on the cheeks and forehead; a white collar round the neck; hind neck brown, with fine transverse grey lines; mantle chesnut-brown, with pale margins to the feathers; rump and upper tail-coverts blackish-green, the sides of the rump greyish white, with fine transverse undulating lines of clove-brown; scapulars greyish-white, with cross wavy brown marks, and some of the outer ones chesnut, with darker cross lines; wing-coverts and primaries brown; speculum deep prussian-blue, with purple and green reflections, bounded on each side by a double border, the inner one velvet-black, the outer white; tail greyish-brown, all the feathers bordered with white; the four central feathers curled upwards; lower neck and breast dark chesnut; abdomen and flanks greyish-white, with transverse undulating lines of brown; under tail-coverts blackish-green.

Bill pale greenish-yellow; irides red or hazel brown; legs orange. Length 24 inches; wing $11\frac{1}{2}$; extent 36; tail $3\frac{1}{2}$; bill $2\frac{1}{2}$; tarsus $1\frac{3}{4}$; middle toe $2\frac{1}{4}$.

The female is smaller, and has all the upper plumage brown, of different shades, the feathers edged with pale reddish-brown; the head and neck creamy-white or yellowish with dusky streaks; speculum much as in the male; throat buff or whitish; breast and under parts yellowish-brown, obscurely spotted and streaked with darker brown; the central tail feathers not turned up. Bill greenish-grey.

The Mallard is apparently not very rare in the North of India, especially in the North-west, but I have never seen it South of the

Nerbudda, and have only shot it myself near Mhow, and lately in Kumaon. It has not yet occurred in Bengal. It appears to remain all the year in Cashmere, and to breed in that country, as Theobald found the eggs there in May. It is found throughout the Northern Hemisphere, breeding in temperate regions. It is one of the best Ducks for the table, and, as is well known, is the origin of our domestic Duck.

The birds of the next group have a plain and spotted character of plumage, and appear peculiar to tropical and southern regions.

16. *Anas pœcilorhyncha*, PENNANT.

BLYTH, Cat. 1773—JERDON, Cat. 387—SYKES, Cat. 218—HARDWICKE, Ill. Ind. Zool., pl.—*Garm-pai*, H. of some Falconers—*Bata* of some.

THE SPOTTED-BILLED DUCK.

Descr.—Top of the head and nape dark sepia brown, with some pale brown edgings; a dark brown line from the upper mandible through the eye ending in a point; supercilium, whole face, and neck dingy fulvous with small brown streaks, enlarging on the lower neck; upper plumage, including the lesser and median wing-coverts and scapulars, hair-brown; greater coverts white, edged with deep black; primaries brown; secondaries, forming a conspicuous speculum, glossy green, with a black tip, narrowly edged with white on the innermost feathers; tertiaries white externally, (forming a continuous line with the white coverts), hair-brown internally; lower back and rump black; tail deep brown; beneath, from the breast pale earthy or dingy white, with numerous brown spots, increasing in size on the abdomen and flanks; vent and under tail-coverts deep blackish-brown.

Bill blackish with a red spot at the base, and the tip yellow; irides brown; legs and feet orange-yellow. Length 24 to 25 inches; wing 12; tail 4; bill at front $2\frac{1}{2}$; tarsus 2; mid-toe $2\frac{1}{2}$. Sexes alike.

This fine Duck is almost peculiar to India, including Ceylon, and is found throughout the whole country of which it is a permanent resident; it is also found in Burmah. It frequents by preference,

but not exclusively, well wooded districts, sequestered tanks, and marshy ground, and in the cold season spreads sparingly over the barest districts where tanks abound. It is usually met with in small parties, rarely more than from eight to twenty, and generally fewer. I have seen it most abundant in Western Mysore and in Eastern Bengal. It nidificates on the ground, among long grass, laying eight or ten greenish-white eggs. The voice is very like that of the wild Duck, but is not often repeated. Its flight is rather slow and heavy. It is one of the very best Ducks for the table, in my opinion rivalling the Mallard, Gadwall, and Red-crested Pochard.

Other allied species are *A. flavirostris*, A. Smith, and *A. guttata*, Licht., from Africa; and there are others from the Oceanic region. A closely allied species from North Africa was considered the same by Rüppell, but Blyth distinguished it, naming it *A. Rüppellii*.

The next species has been separated as *Rhodonessa* by Reichenbach.

17. *Anas caryophyllacea*, LATHAM.

BLYTH, Cat. 1774—JERDON, Cat. 368—JERDON, Ill. Ind. Orn., pl. 34—GRAY Illd. Genera of Birds, pl.—*Lal-sira*, H. of some.

THE PINK-HEADED DUCK.

Descr.—Male, with the head, cheeks, sides of neck, and hind neck, beautiful pale rosy-pink, with, in the breeding season, a small tuft of still brighter rosy on the top of the head; the rest of the plumage fine glossy dark chocolate-brown, paler and less glossed beneath; speculum and the inner webs of many of the quills pale reddish fawn or dull salmon colour; edge of the wing white; uppermost tertiaries rich glossy-green; lower wing-coverts and quills beneath pale dull pink colour, with a satiny lustre.

Bill reddish-white, rosy at the base and faintly bluish at the tip; irides fine orange-red; legs and feet blackish, with a tinge of red. Length 24 inches; wing $11\frac{1}{2}$; extent 39; tail $4\frac{1}{4}$; bill at front $2\frac{1}{4}$; tarsus $2\frac{1}{4}$; mid-toe $2\frac{3}{8}$.

The female has the pink of the head somewhat more dull and pale, and the vertex has a brownish spot in some, which is continued faintly down the back of the neck. The young birds have the head and neck pale vinous-isabella colour, with the top of the head, nape, and hind neck, brown; the whole plumage lighter brown, in some mixed with whitish beneath.

This very lovely Duck is most common in parts of Bengal, but is found at times throughout Northern India, is rare in the N. W. Provinces, and still more so in Central and Southern India. I have procured it rarely as far south as Madras, and long ago heard of its occasional visits to the Deccan, but it is only since I have visited Bengal that I have seen it in its native haunts. It shows a decided preference for tanks and jheels well sheltered by overhanging bushes, or abounding in dense reeds, and in such places it may be found in the cold season in flocks of twenty or so occasionally, but generally in smaller parties of from four to eight. During the heat of the day, it generally remains near the middle of the tank or jheel, and is somewhat shy and wary. It breeds towards the end of the hot season, and its eggs are said to be laid among thick grass not far from the water. Its cry is very similar to that of the domestic Duck. The beautiful pale rosy tint of the under surface of the wings is very conspicuous during flight, and renders this species very readily distinguishable even at some distance. This Duck is said also to occur in Burmah. It is excellent eating. Many other species of *Anas* are recorded, but the only other Eastern ones are *A. luzonica*, Fraser, and *A. superciliosa*, Müll. and Schleg.

Gen. CHAULELASMUS, Gray.

Syn. *Chauliodus*, Swains.

Char.—Bill equal to the head, depressed throughout, of nearly uniform width, but slightly narrowing towards the tip, which has a small nail; the lamellæ long, projecting; wings lengthened; tail rather long; the central feathers slightly lengthened.

Gadwalls differ from the true Ducks in their slightly shorter bill, and more lengthened and delicate lamellæ. They are said by

Selby to be more aquatic than the wild Ducks, and to dive readily, but I have not observed this latter habit.

18. *Chaulelasmus streperus*, LINN.

Anas apud LINNÆUS—BLYTH, Cat. 1777—JERDON Cat. 381—SYKES, Cat. 216—GOULD, Birds of Europe, pl. 366.

THE GADWALL.

Descr.—Male, head and neck greyish white, speckled with brown; back dark clove-brown, with white crescentic lines; scapulars undulated with white and blackish brown; rump and upper tail-coverts black, glossed with purplish blue; tail cinereous brown, edged and tipped with white; lesser wing-coverts grey, mixed with white; median wing-coverts rich brownish chesnut; greater coverts glossy black; speculum white above, black beneath; quills brown; tertials brownish grey; lower part of the neck and breast dark brown with white crescentic lines; abdomen white, minutely speckled with greyish brown, and the flanks with brown and white undulations; lower tail-coverts glossy black.

Bill brownish black, tinged with reddish beneath; irides dark-brown; legs pale orange. Length about 20 inches; wing $10\frac{1}{2}$; tail $3\frac{1}{2}$; bill at front $1\frac{3}{4}$; tarsus $1\frac{1}{2}$.

The female has the head black mixed with whitish, a pale superciliary streak; the upper parts deep brown, the feathers edged with buff; the lesser wing-coverts hair-brown, margined paler; the speculum as in the male; the tail marbled with brown and whitish; the chin and throat white; breast pale buff, with brown spots, and the rest of the lower parts white; the bill paler, and its margins reddish.

The Gadwall is by no means a rare bird in any part of India, in the cold weather, generally frequenting the more open and larger tanks in moderately large parties. Its flight is rapid, and its voice not unlike that of the common Duck. It is found over the greater part of the Old Continent, and also in America. It is justly considered one of the best wild Ducks for the table. No other species of Gadwall is recorded.

Gen. DAFILA, Leach.

Char.—Tail long, of sixteen feathers, with the central feathers much lengthened and narrow; neck very long; bill slightly narrower than in the preceding forms, and elevated at the base, equal to the head, of uniform width; lamellæ not projecting; wings long, the 1st primary longest.

The Pintails are, by some, not separated from the Teals, but their larger size, long necks, and lengthened rectrices, sufficiently characterize them.

19. *Dafila acuta*, LINN.

Anas apud LINNÆUS—BLYTH. Cat. 1775—JERDON, Cat. 385—GOULD, Birds of Europe, pl. 365—*Dig-hons*, Beng.—*Kokarali*, Sindh.

THE PINTAIL DUCK.

Descr.—Male, forehead and crown umber-brown, the feathers with paler edges; the rest of the head, chin, and throat, dark hair-brown, slightly glossed behind the ears with purplish green; fore-part of the neck and two lateral streaks, passing upwards to the occiput, white; neck above deep blackish-brown; the whole of the back beautifully marked with transverse undulating lines of black and greyish-white; scapulars black; upper tail-coverts and tail dark cinereous brown, the edges of the feathers paler, and the two central elongated tail-feathers black; wing-coverts and primaries hair-brown; lesser wing-coverts smoke-grey; the speculum blackish-green, glossed with purple, bordered above by a pale ferruginous bar, and below by a white one; tertiaries long and acuminate, velvet-black, with a broadish edging of greyish or yellowish-white; breast and abdomen white, the sides of both with transverse black and whitish lines, and the latter minutely speckled with grey towards the vent; under tail-coverts black.

Bill black, the sides of the upper mandible bluish; irides dark brown; legs blackish grey. Length 25 to 28 inches; wing nearly 11; tail $8\frac{1}{2}$; bill $2\frac{1}{2}$; tarsus $1\frac{3}{4}$; middle toe $2\frac{1}{4}$.

The female is smaller, has the head and neck reddish brown, speckled and streaked with dusky; the upper plumage umber-

brown, the feathers edged with reddish white; wing-coverts brown, edged white; lower parts pale fulvous, obscurely spotted with brown; speculum dull without the green gloss; tail, with the two medial feathers, scarcely longer than the others.

The males of this species are said, by an actual change of colour in the feathers, to assume the female plumage for a short time after incubation, but to change it at the autumnal moult.

The Pintail is one of the most numerous winter visitants to India in the present sub-family, frequenting large tanks and jheels, often in immense flocks, and flying with great rapidity. Its long brown neck and lengthened tail causes it to be readily distinguished when in flight. Its call is soft and subdued, and it is by no means garrulous. Few Ducks are brought to the different markets for sale in such abundance as this species, and it is very excellent eating. Like most of the Ducks, it has a wide geographical distribution throughout both Continents, and breeds in northern regions, laying eight or ten bluish-white eggs.

Another species of Pintail is *D. bahamensis*, L., the type of *Pacilonetta*, Eyton.

Gen. MARECA, Stephens.

Char.—Bill short, raised at the base, narrowing towards the tip; nail moderate; lamellæ distant, projecting in the middle of the bill; tail short, cuneate, of fourteen feathers; hind-toe small with a narrow web.

The Wigeons have the bill shorter than in the wild Duck and Teal, more raised at the base and narrow at the tip, and with the lamellæ short and distant, more like those of the *Anserinæ*. In accordance with this structure, they live chiefly on grasses, &c., which they are said to pluck like geese. In the form of the tail, and also in that of the tracheal labyrinth, they most resemble the Pintails.

20. *Mareca Penelope*, LINN.

Anas apud LINNÆUS—BLYTH, Cat. 1778—SYKES, Cat. 219—*A. fistularis*, BRISSON—JERDON, Cat. 380—GOULD, Birds of Europe, pl. 359—*Cheyun*, Nep.

THE WIGEON.

Descr.—Male, forehead and crown creamy-yellow; rest of the head and upper part of the neck chesnut-red; the cheeks speckled with black; back minutely barred with transverse wavy lines of black and white; scapulars black, edged with white; tail blackish grey; wing-coverts pure white; the greater coverts with velvet black tips, some of the lesser ones, near the body, pale greyish; quills cinereous brown; speculum of three bars, the middle one glossy green, the upper and under ones black; chin and throat black; lower part of the neck and breast vinaceous red; abdomen white, the flanks with black and white wavy lines; under tail-coverts black, glossed green.

Bill plumbeous blue, black at the tip; irides red-brown; legs dusky leaden. Length $18\frac{1}{2}$ inches; wing $10\frac{1}{2}$; tail $4\frac{3}{4}$; bill at front $1\frac{3}{8}$; tarsus barely $1\frac{1}{2}$; mid-toe not quite 2.

The female has the head and neck fulvous brown, speckled with dusky; the back and scapulars dusky brown with reddish edges; wing-coverts brown, edged with whitish; the speculum without the dark green gloss; the breast and belly much as in the male; the flanks rufous brown with ashy tips; bill and legs more dusky than in the male.

In some specimens, the forehead alone is yellowish, that tint not extending over the top of the head.

In summer the head and neck of the male become spotted with black; the back and scapulars are mottled and barred with brown and dusky; the breast and sides are reddish-brown, with darker bars and lines; the under tail-coverts white, with brown bars.

The Wigeon cannot be said to be either common or abundant in India, although it is met with occasionally in every part of the country, in small or moderate flocks. It has a peculiar shrill whistling call chiefly heard during flight. Its geographical distribution is over the northern and temperate regions of the Old Continent. It breeds far north, and, though very abundant in Britain, is only a winter visitant there.

The American Wigeon is very closely allied, and was formerly considered identical. *M. castanea*, Eyton, and *M. gibberifrons*,

Müller, are eastern Ducks considered to belong to this genus, and there are others from Africa and America.

Gen. QUERQUEDULA, Stephens.

Char.—Bill of moderate length and of uniform width, slightly raised at the base; the lamellæ not apparent; the nail small, and the tip obtuse; wing long and pointed; tail wedge-shaped, of 14 or 16 feathers.

The Teals, so called, are simply small Ducks, much of the same type as restricted *Anas*, but with the bill longer and narrower, assuming a semi-cylindric shape; the laminae, too, are shorter and less prominent. They are of somewhat slender make, and fly very rapidly. Several species are known, all of small size.

21. *Querquedula crecca*, LINN.

Anas apud LINNÆUS—BLYTH, Cat. 1780—SYKES, Cat. 222—JERDON, Cat. 384—GOULD, Birds of Europe, pl. 362—*Tulsia bigri*, Beng.

THE COMMON TEAL.

Descr.—Male, crown of head, cheeks, front and sides of the neck, ferruginous brown; on the sides of the head, inclosing the eye, a large patch of deep glossy green, passing off backwards to the nape in the form of a broad band; back and scapulars beautifully marked with transverse undulating lines of black and white, some of the longer scapulars creamy-yellow, with a portion of their outer webs velvet black; tail hair brown, the feathers edged with white; wing-coverts brown, tinged with grey; the speculum, formed by the tips of the secondary coverts, deep green in the middle, velvet black at the sides, bordered above by a broad yellowish white bar; chin black; lower part of the neck in front, and breast, reddish or creamy-white, with round black spots; abdomen white; lower tail-coverts blackish-brown, bordered at the sides with yellowish-white.

Bill blackish; irides hazel-brown; legs greyish-brown. Length $14\frac{1}{2}$ inches; wing $7\frac{1}{2}$; tail barely 3; bill at front $1\frac{1}{2}$; tarsus $1\frac{1}{2}$; mid-toe $1\frac{1}{2}$.

The female has the head, neck, and all the upper parts, dusky-brown, the feathers more or less broadly edged with pale reddish-brown; the throat, cheeks, and a band behind the eyes, yellowish-white, spotted with black; the speculum as in the male, and the under parts yellowish-white.

The well known Teal is one of the most abundant as well as the earliest of the visitors to India. I have seen it early in September, and it is late before it leaves the country. It frequents both tanks and rivers, often in immense flocks, and its flight is amazingly rapid. Large numbers are netted or caught in various ways to supply the *Tealeries*. It is a strictly night-feeding species and about sunset flocks may be seen and heard flying in different directions to their feeding grounds. Its geographical distribution is similar to that of most of the Ducks of this sub-family, and it breeds in northern and temperate regions.

The next species is placed under *Pterocyanea*, Bonap., differing in having the points of the lamellæ just visible, and the bill slightly broader in proportion making an approach to the Gadwalla.

22. *Querquedula circia*, LINNÆUS.

Anas apud LINNÆUS—BLYTH, Cat. 1781—SYKES, Cat. 221,—JERDON, Cat. 383—GOULD, Birds of Europe, pl. 364—A. querquedula, LINN.

THE BLUE-WINGED TEAL.

Descr.—Male, crown, occiput, and a line down the back of the neck, umber-brown; over each eye a band of pure white, prolonged down the sides of the neck; cheeks and upper part of the neck chesnut-brown, with fine longitudinal streaks of white; back brown, glossed with green, the feathers edged with ashy and yellowish-brown; scapulars long and acuminate, black, with a broad central white streak; wing-coverts bluish-ash; speculum greyish-green, bordered above and below by a white bar; tail dusky-grey, the feathers edged lighter; upper tail-coverts yellowish-white, spotted with black; chin black; lower part of the neck and breast pale fulvous, with crescent-shaped black bars;

abdomen white, the flanks with transverse wavy lines of black ; vent and under tail-coverts yellowish-white, spotted with black.

Bill blackish-brown ; irides hazel ; legs dusky. Length $15\frac{1}{2}$ -16 inches ; wing 8 ; tail nearly 3 ; bill at front $1\frac{1}{2}$; tarsus $1\frac{1}{2}$; mid-toe not quite $1\frac{1}{4}$.

The female has the head, neck, and upper parts, dusky-brown, the feathers, with whitish edges ; the eye streak faint ; wing-coverts dark ash-grey ; speculum dull, the green tinge almost wanting ; the chin and throat white ; the lower part of the breast and belly white, spotted with brown on the flanks and lower abdomen.

The Blue-winged or Garganey Teal is, perhaps, still more abundant in India, than the common Teal, but is somewhat later in its arrival here. It occurs in vast flocks, feeding at night chiefly, and has a swift flight. Like the last, numbers are caught and fed throughout the summer in our *Tealeries*, and both this and the last are most excellent food. The Garganey Teal does not extend to America, but is distributed over the greater portion of the Old Continent.

I have once or twice procured birds with the whole head, neck, and under parts, deep ferruginous, but I consider this to be an individual variation.

Vast quantities of this and the previous species are annually caught alive, some by large flap-nets, others by nooses fixed to a long line across a jheel ; and in some places, by a man wading with his head above water concealed in a large earthen chatty, several of which have previously been set afloat.

The next species has been separated by Bonaparte as *Eunetta*, but it only differs in its mode of coloration.

23. *Querquedula glocitans*, PALLAS.

Anas apud PALLAS—BLYTH, Cat. 1779—*A. picta*, STELLER—*A. formosa*, GEORGI—*A. baikal*, BONNATERRE.

THE CLUCKING TEAL.

Descr.—Male, forehead, top of the head, and occiput, rich purple-brown, bounded by a narrow white line from the eye ;

face, cheeks, and sides of neck fawn colour; a black streak from below the eye, meeting a black patch on the throat; nape and hind neck glossy-green, ending in a black stripe down the back of the neck, separated from the fawn colour of the side of the neck by a narrow white line; upper plumage finely marbled-grey, edged with rufous on the back; upper wing-coverts hair-brown; the median coverts the same, with an edging of rufous forming the anterior margin of the speculum, which is glossy-green, ending in velvet-black, and bordered posteriorly by silvery white; primaries brown; scapulars lengthened, deep black in the centre, white on their upper side, and rufous externally; upper tail-coverts brown, white on either side; tail of 16 feathers dark-brown; beneath the throat black; the neck and breast vinous-purple, with a few black spots, paling below; abdomen white, flanks mottled grey; under tail-coverts black.

Bill dusky; legs dusky. Length $15\frac{1}{2}$ inches; wing $8\frac{1}{2}$; tail 3; bill at front $1\frac{1}{2}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{1}{2}$; weight 1lb.

The female wants the rich markings on the head and face, which are mottled grey and brown; the scapulars are not lengthened; the upper plumage is dusky, with rufous edgings; the chin and throat white; the breast rufous, largely spotted with dark-brown, as are the flanks; and the tail-coverts white, with brown spots.

This beautiful Teal has been obtained on very few occasions, by Mr. Blyth, from the Calcutta Bazar, and there is no other record of its occurrence in India.

It is a rare bird in Europe, and appears to be most common in Northern Asia, on the borders of Lake Baikal, extending to Japan and China. Pallas gave it its specific name in consequence of its peculiarly loud clucking-call, *mok, mok-mok, lok*, which Midden-dorff calls a horrible noise. Pallas states that it breeds in Eastern Siberia, laying 10 eggs in a hollow in the ground, and that it migrates early.

A. falcata, Pallas, belongs to the same type as *glocitans*, but *A. bimaculata* is considered to be a hybrid between the Wigeon and Pintail. *Q. javana*, Bodd., figd. P. E. 930.; *Q. manillensis*, Gmel.; and *Q. numeralis*, Müll. and Schl., are Eastern Teal; and there are several other recorded species of *Querquedula*, some

from Africa, others American. Not far from the Teals should be placed the beautiful Summer Duck of North America, *Aix sponsa*, L., and the still more gorgeous Mandarin Duck, *A. galeorculata*, L. This type, by its somewhat narrow and tapering bill, appears to grade towards the *Mergida*. A few other forms of this sub-family are given by Bonaparte, but without any very special characteristics.

Sub-fam. FULIGULINÆ, Diving Ducks.

Hind toe short, bordered by a more or less wide web ; wings shorter than in the last sub-family ; tarsus short, more compressed, set further backwards ; feet large, the web reaching to the very end of the toes, and wide ; tail generally short, rounded, or somewhat wedged.

The Ducks of this sub-family have a larger head and shorter neck than the true Ducks ; they walk badly in consequence of the very backward position of their legs, but swim well and dive freely. There is less difference, in general, between the sexes than in the last sub-family, and there is only one moult. Many are exclusively marine Ducks, others partially so ; a few are mostly fresh water, and to this last section belong all the Indian species. These vary somewhat in the form of the bill and in some other points, and though closely related, and all formerly placed under *Fuligula*, are now divided according to Gray (whose List of Genera I chiefly follow) into three genera. They comprise the *Fuliguleæ* of Bonaparte. The Pochards generally have a stout heavy body, and firm, close, and thick plumage, colored in masses, mostly uniform and plain, and the speculum is less strongly marked or wanting. In all, the trachea is terminated by a labyrinth, partly osseous, partly membranous.

Gen. BRANTA, Boie.

Syn. *Callichen*, Brehm and Gray ; *Mergoides* EYTON.

Char.—Bill long, barely raised at the base, moderately wide ; tip depressed, slightly narrowed, ending in a rather large nail ; lamellæ distant, large and prominent ; wings moderate, 1st quill longest ; tail short, rounded, of 14 feathers.

This genus comprises but one species.

24. *Branta rufina*, PALLAS.

Anas apud PALLAS—BLYTH, Cat. 1784—GOULD, Birds of Europe, pl. 369—SYKES, Cat. 223 and 224?

THE RED-CRESTED POCHARD.

Descr.—Male, head, cheeks, throat, and upper part of the neck reddish-bay; the feathers on the crown elongated and of a silky texture, forming a crest somewhat paler than the rest of the head; back, wings, and tail yellowish-brown; the bend of the wing, a large spot on the sides of the back, the speculum, and the base of the primary quills white; lower part of the neck, breast, and abdomen deep black; the flanks white.

Bill bright vermillion red, the tip white; irides red; legs orange-red. Length 22 inches; wing $10\frac{1}{2}$; tail 3; bill at front $2\frac{1}{4}$; tarsus $1\frac{1}{2}$; mid-toe $2\frac{1}{2}$.

The female has the upper parts pale yellowish-brown, darker on the head and neck, and the crest less developed; speculum half greyish-white, half pale brown; base of the quills white, tinged with brown; breast and flanks yellowish-brown; belly grey; bill and feet reddish-brown.

This fine Duck is found throughout the greater part of India, is more rare in the South, and chiefly frequents the larger tanks and jheels. It generally keeps to the middle of the tanks, and is a wary bird, not usually allowing a near approach. Its flesh is juicy, tender, and high flavored, and it is, by some, considered the finest Duck for the table. A writer in the *India Sporting Review* remarks, that during the day, they are constantly on the move, 'now pursuing one another, now screaming, all up at once, then down again.'

It is chiefly a native of Northern Asia, North-Eastern Europe, and Northern Africa, (where it is said to breed in marshes, laying seven or eight brilliant green eggs,) wandering South in winter, and very rarely extending its migrations as far West as Britain. No other species of this genus is recorded.

Gen. *AYTHYA*, Boie.

Syn. *Nyroca*, Fleming.

Char.—Bill long, raised at the base, broad, depressed, and obtuse at the tip, of nearly uniform width throughout; lamellæ not pro-

minent; tail short and rounded, the feathers narrow and somewhat rigid.

This genus comprises two forms, one of which has been separated as a sub-genus.

The birds of the first group are large Ducks, with the back usually finely undulated, and some have hence been called Canvas-backs.

25. *Aythya ferina*, LINNÆUS.

Anas apud LINNÆUS—BLYTH, Cat. 1785—JERDON, Cat. 389—GOULD, Birds of Europe, pl. 368.

THE RED-HEADED POCHARD.

Descr.—Male, head and neck bright chesnut-red; upper part of the back black; middle and lower back, wing-coverts, and scapulars white, with numerous fine undulating black lines; rump and upper tail-coverts black; tail dark ashy-brown; primaries deep dusky-brown; secondaries bluish-grey; breast black; abdomen whitish, faintly undulated like the back, the lines becoming darker towards the vent; under tail-coverts black.

Bill bluish-grey, the tip and base black; irides orange-yellow; legs bluish-grey. Length 19 inches; wing 9; extent 30; tail $2\frac{1}{2}$; bill at front 2; tarsus $1\frac{1}{2}$.

The female has the crown, nape, and sides of the neck, and the upper part of the back, reddish-brown; the back as in the male, but the lines less distinct; throat and forepart of the neck white, mixed with reddish; breast reddish-brown, mottled with white; the middle of the abdomen greyish-white.

This Pochard appears to be more abundant in Western India than in Bengal, but occurs throughout the whole country in small parties, generally on the larger and more open tanks.

It inhabits Northern Europe and Asia, and breeds among reeds and plants, laying twelve or thirteen greenish-white eggs.

The American representative is now considered distinct, *A. Americana*, Bonap.; and there is, besides, in North America, the *A. valisneria*, or Canvas-back, said to be the best of all the Ducks of the New Continent.

The next species (with some closely allied ones) has been separated as *Nyroca*, and this is admitted as a sub-genus by Gray. The birds are of smaller size, and have a somewhat different colouration.

26. *Aythya nyroca*, GULDENSTADT.

Anas apud GULDENSTADT—BLYTH, Cat. 1789—JERDON, Cat. 391—*A. leucophthalmos*, BECHSTEIN—*A. glaucion*, PALLAS—GOULD, Birds of Europe, pl. 368—*Lal-bigri*, Beng.

THE WHITE-EYED DUCK.

Descr.—Male, head and neck deep ferruginous, with a narrow collar of blackish-brown on the lower part of the neck; back, scapulars, and wing-coverts dusky-brown, somewhat glossed with green and purple, and the whole finely powdered with pale reddish-brown; upper tail-coverts and tail dusky-brown, with a dash of ferruginous; primaries dusky; speculum white, edged with black in the lower part; chin whitish; lower part of the neck and breast bright ferruginous; abdomen and under tail-coverts pure white; the lower portion and vent blackish-grey.

Bill bluish; irides white; legs grey. Length 16 inches; wing $7\frac{3}{4}$; tail 2; bill at front $1\frac{5}{8}$; tarsus $1\frac{1}{4}$; middle toe nearly 2.

The female differs from the male in the head and neck being brown, the feathers edged with ferruginous; the upper parts are glossy umber-brown, the feathers edged with pale brown; the irides are less pure white, and the bill and feet are dusky-grey; otherwise as in the male.

In the young, there is still less ferruginous, and the irides are pale brownish.

This little Duck is exceedingly common in Northern and Central India, less so in the South. It frequents both tanks and rivers, and prefers grassy tanks and wooded jheels and rivers. It appears to feed a good deal during the day, and is met with in large parties scattered among the grass or weeds, the birds often rising singly.

This Pochard inhabits the same countries as the other species, and is occasionally killed in Britain. It is stated to breed in Northern Africa. One or two allied species are recorded from Australia, and another from the Marianne islands.

Gen. **FULIGULA**, Stephens.Syn. *Platypus*, Brehm—*Fulix*, SUNDEVALL.

Char.—Bill moderately long, not raised at the base, broad throughout, depressed, the sides dilated, and the tip somewhat broader than the base; lamellæ distant, not prominent; nostrils advanced; wings moderate; tail short, rounded.

These Ducks have the widest bills in this sub-family. The first species has been separated as *Marila*, Reich. It has the bill proportionally longer than in restricted *Fuligula*, and not quite so broad.

27. **Fuligula marila**, LINNÆUS.

Anas apud LINNÆUS—BLYTH, Cat. 1787—GOULD, Birds of Europe, pl. 371.

THE SCAUP POCHARD.

Descr.—Male, head and neck black, glossed with green; top of the back and scapulars whitish, with zig-zag black lines; lower back and upper tail-coverts black; tail brown; wing-coverts black, marbled with ashy; speculum white; quills brown; lower neck and breast deep black; abdomen and sides pure white, with brown zig-zag markings on the lower portion; under tail-coverts black.

Bill clear bluish above, dusky below, the tip black; irides brilliant yellow; legs bluish-ashy, the webs blackish.

The female has the head and neck blackish-brown, with a large white space round the eye; back, scapulars, and wings with brown and white zig-zag markings; lower back and upper tail-coverts smoky-black; lower neck and breast deep brown; abdomen white, marked with brown posteriorly.

Bill deep grey. Length 19 to 20 inches; wing 9; extent 29; tail $2\frac{1}{2}$; bill at front nearly 2; tarsus $1\frac{1}{2}$; mid-toe $2\frac{1}{2}$.

The Scaup Duck has hitherto only been recorded from Nepal, and must be a very rare visitant. It inhabits the Northern regions of Europe, Asia, and America, and prefers sea-coasts and the mouths of tidal rivers to fresh water lakes; it feeds chiefly on molluscs.

The American representative of this species is separated by Bonaparte as *F. mariloides*; another species from New Zealand is recorded by Bonaparte.

28. *Fuligula cristata*, RAY.

BLYTH, Cat. 1788—SYKES, Cat. 225—JERDON, Cat. 390—*A. fuligula*, LINNÆUS—GOULD, Birds of Europe, pl. 370—*Dubaru*, H.—*Nella chilluwa*, Tel.—*Golden-eye* of Indian Sportsmen.

THE TUFTED DUCK.

Descr.—Head and neck, including the long, pendent, silky crest, glossy black with green and purple reflections; back, wings, and rump black, slightly glossed and powdered with greyish-white; breast glossy black; rest of the lower parts pure white; the vent black; speculum, formed by the secondaries, white, with a narrow greenish-black edge; tertials glossy green.

Bill dark bluish-grey, the tip black; irides golden-yellow; legs leaden, the webs dusky. Length 17 inches; wing $8\frac{1}{4}$; extent 28; tail rather more than 2; bill at front $1\frac{7}{8}$; tarsus $1\frac{5}{8}$; mid-toe $2\frac{1}{4}$.

The female has the colours somewhat duller and more brown; the crest not so long; the speculum smaller, and the lower parts spotted with brown. The young want the crest, and have the base of the bill and region of the eyes varied with white.

The Tufted Duck is very common in Central and Southern India, less so in Bengal. It frequents open tanks, keeping well away from the edges, and is generally found in small or moderately sized parties. It is very late in leaving India, and I once killed one in June, near Hyderabad in the Deccan. It is found throughout Europe and Asia, breeding in the North. It feeds on water-insects and molluscs. The American representative is *A. collaris*, Don, (*rufitorques*, Bonap.)

Other Ducks of this sub-family are the Sea-ducks, the Eiders, Scoters, Steamer-ducks, &c.

The Sea-Ducks are classed by Bonaparte under the section *Clanguleæ*, and the Eiders and Scoters under *Somateriæ*; they might perhaps form one sub-family, all having a somewhat similar style of colouring, and being mostly denizens of Northern Seas. Among the *Clanguleæ* deserving of notice are the beautiful *Harelda glacialis*, or long-tailed Sea-duck: this species moults twice a year, and appears to be very distinct from the other types;

the bill is short and narrow anteriorly. The Harlequin Duck, *A. histrionica*, variegated in a fantastic way with black and white, forms the genus *Histrionicus*, Lesson. The garrots or golden-eyes form the genus *Clangula*. They differ in habit from the other Sea-ducks, preferring fresh water, and they breed in the hollows of trees. Their heads appear very full and puffy, and they seem to grade into the *Fuliguleæ*.

The Eider Duck, *Somateria mollissima* (L.) is the type of the next group: its down, and that of the King-duck, *S. spectabilis*, are highly esteemed. *Anas Stelleri*, Pallas, forms the type of *Stelleria*, Bonap. The Scoters are large dark coloured Ducks that dive remarkably well, and live on shell-fish. The best known species are *Oidemia nigra*, the Black Scoter, and *O. fusca*, the velvet Scoter, both from Northern Seas.

The *Microptereæ* contain *Micropterus cinereus*, the Steamer or Racer-duck of Southern Seas. It flies badly, having short wings, but swims and dives with rapidity. *Camptolæmus labradorus* is another Duck of the same group.

The *Erismaturinæ* are classed as a family by Bonaparte. Their chief characteristics are the stiff and pointed tail-feathers. Among the most remarkable forms are *Biziura lobata* of Australia, with a large fleshy appendage hanging under the bill; *Erismatura leucocephala*, from lakes in Northern Asia and Africa, rarely killed in Eastern Europe; and there are species of this genus from Africa, America, and Australia. *Nesonetta Aucklandiæ*, Gray, is another type, as is *Thalassornis* of Eyton.

Fam. MERGIDÆ.

Bill straight, narrow, cylindrical, the tip well bent over; the edges of the mandibles armed with strong teeth pointing backwards; nostrils median, longitudinal; tarsus short, set far backwards; feet large, hind toe lobed; wings moderate; tail wedge-shaped, of 16 or 18 feathers. Form lengthened and flattened. Head more or less crested.

The Mergansers form a well-marked group in this tribe. Their narrow and toothed bill is very unlike that of the Ducks, although the teeth are only a modification of the lamellæ. Their flight is strong and swift, but their gait on land is awkward. They moult

in autumn only, and the colours of the males undergo an extraordinary amount of change towards mid-summer from an alteration in the colour of the feathers themselves. They do not acquire their full plumage till the second autumnal moult. They are excellent divers, using their wings as well as their feet; and they live chiefly on fish. The tongue is long, pointed and ciliated; the gizzard is less muscular, and their intestines shorter than those of the ducks. They possess two cæca of moderate length. The labyrinth or the lower part of the trachea of the males is enormous, and partly membranous. Only five or six species are known. Of these, two visit India in winter; one found in rivers in the Himalayas; the other spread sparingly through Northern India.

Gen. *MERGUS*, Linn.

Char.—Those of the family.

The following species is separated by Bonaparte as *Merganser*:—

29. *Mergus castor*, LINNÆUS.

BLYTH, Cat. 1798—*M. merganser*, LINN.—*M. orientalis*, GOULD—GOULD, Birds of Europe, pl. 384.

THE MERGANSER.

Descr.—Male, head (with a short thick crest,) and upper part of the neck, glossy blackish-green; lower part of the neck white; upper back and scapulars next the body, deep black; the rest of the back and upper tail-coverts ashy, the tips of the feathers whitish here and there; tail ashy-grey; breast, abdomen, and under tail-coverts white, tinged with orange-buff; wing-coverts and outermost scapulars rich buff-orange, and the latter edged with black.

Bill deep blood-red, black on the culmen, paler at the edges; irides red; feet orange-red. Length 26 inches; wing 11; bill at front $2\frac{1}{4}$; tarsus 2.

The female (and young males till the second moult,) have the head and neck reddish-brown; the throat white; the upper plumage ashy; beneath yellowish-white, the sides of the breast and the flanks pale ashy; a white speculum; primaries black; tail ashy-brown.

Bill and feet dull red. Length 23 inches; extent 35; wing $10\frac{1}{2}$; bill at front $1\frac{1}{4}$.

The Merganser is chiefly found, in India, on rivers within the Himalayas, in small parties. I have frequently seen it on the great Rungeet in Sikkim, and also in rivers in Kumaon, and on the Ganges at Hurdwar. One instance only is recorded of its occurrence in Central India, it having been procured by Tickell at Chybassa. Captain Smyth recently gave me two very large concretions found in one of these birds, but I have not yet had them examined. It is said to breed on holes of trees.

The next species, from its small size, and shorter bill, as well distinct mode of colouration, is separated as *Mergellus*.

Gen. MERGELLUS.

Char.—Bill shorter, and somewhat wider than in *Mergus*, the tip much less hooked; teeth numerous and prominent in the lower mandible. Of small size. Pied, black and white, tail of 16 feathers.

30. *Mergellus albellus*, LINNÆUS.

Mergus apud LINNÆUS—GOULD, Birds of Europe, pl. 387.

THE SMEW.

Descr.—Male, a large patch on each side of the base of the bill enclosing the eyes, and another longitudinal one on the occiput, black glossed with green; the rest of the head, occipital crest, and neck white; back, some of the lesser wing-coverts, and the primaries black; scapulars white, edged with black on the outer webs; secondaries and greater wing-coverts black, tipped with white; some of the lesser wing-coverts white; upper tail-coverts and tail bluish-grey; all the lower parts white, with two crescentic bands of black advancing from the shoulders, one nearly encircling the lower part of the breast, the other the upper part of the breast; flanks and thigh-coverts with wavy black lines.

Bill bluish-grey; irides brown; legs plumbeous. Length 16 to 17 inches; wing $7\frac{3}{4}$; tail 3; bill at front $1\frac{1}{4}$; tarsus $1\frac{1}{4}$.

The female has the crown, cheeks, and occiput reddish-brown, the crest shorter than in the male; back, upper tail-coverts, and tail deep ashy-grey; wings as in the male, but the dark parts grey

instead of black; the throat, sides and front of the upper neck, and the abdomen white; and the lower neck, breast and flanks, clouded with ash colour. Bill and legs dark grey. Much smaller than the male, and Pallas states that she has only 14 rectrices.

The Smew is found occasionally in various parts of Northern India during the cold weather. It has been killed near Cuttack; in Oude; is said not to be rare near Delhi; and has also been met with in Sindh.

It inhabits the north of both Continents, breeding in high latitudes in crevices and holes of trees, and laying 8 eggs. The young have pale or whitish down, and Mr. Wolley, who remarks this fact, states that no duck that has white down lays its eggs in an exposed situation; the converse, however, does not hold good, for the little Cotton-teal, that always breeds in holes, has black down. It is said to be an excellent diver, and to feed on fish, crustacea, and water insects, is very shy and vigilant, and flies rapidly. During flight it continually utters its peculiar bell-like call, hence it is called the Bell-duck in Northern Asia. Its flesh is exceedingly fishy, and, says Pallas, is rarely eaten even by the Russians. The same naturalist states that it returns very early from its winter migrations, the females arriving first, they are hence called Widows by some.

A very handsome species, *Mergus cucullatus*, from America, a rare visitant to England, is separated by Reichenbach as *Lophodytes*; and the red-breasted Merganser of Europe, is retained under restricted *Mergus*. One or two additional species of this family are recorded, one of which, *Merganetta armata*, differs in its somewhat rounded wing, armed with a spur.

FINIS.

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* This is the same as the black-breasted quail.

